

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MARYLAND

G. W. ARU, LLC, *et al.*,

*

Plaintiffs,

*

v.

*

Civ. No. JKB-22-2636

*

W. R. GRACE & CO.-CONN.,

*

Defendant.

* * * * *

REDACTED MEMORANDUM*

* The original version of this Memorandum was issued on December 17, 2024, and docketed under seal. (ECF No. 223.) The order effectuating the December 17 Memorandum was issued that same day. (ECF No. 224.) The Court subsequently granted the parties' joint motion to maintain the December 17 Memorandum under seal and to docket a publicly viewable version of the same, with redactions applied to two short phrases. With the sole exceptions of this cover sheet and the redactions applied at pages 49 and 52, note 22, this Memorandum is in all respects identical to the December 17 Memorandum.

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I. INTRODUCTION¹

Plaintiffs G. W. Aru, LLC and Cochise Technology, LLC (collectively, “GWA”) have brought this action against Defendant W. R. Grace & Co.-Conn. (“Grace”) for patent infringement and false advertising. Now pending before the Court are the parties’ cross-motions for summary judgment.² (ECF No. 180 (GWA’s Motion for Partial Summary Judgment); ECF No. 189 (Grace’s Cross-Motion for Summary Judgment and Response in Opposition to Plaintiffs’ Motion for Partial Summary Judgment)). The motions are fully briefed, and no hearing is necessary. *See* Local Rule 105.6 (D. Md. 2023).³ For the following reasons, each party’s motion will be granted in part and denied in part.

The Court will begin by setting forth the factual and procedural background of the case, with additional facts stated as relevant in the applicable parts of the analysis. The Court will then articulate the applicable legal standard for evaluating cross-motions for summary judgment under Federal Rule of Civil Procedure 56. Then, the Court will evaluate each side’s request for summary judgment, starting with an analysis of GWA’s Motion for Partial Summary Judgment before turning to Grace’s Cross-Motion for Summary Judgment.

¹ This Memorandum will be docketed under seal to protect the confidentiality of trade secrets and other such information. The parties will be directed to file a proposed unsealed version of this Memorandum with narrowly tailored redactions (to the extent that the parties contend any such redactions are necessary), which will then be made publicly viewable on the Court’s docket.

² Also pending before the Court is GWA’s Second Motion for Preliminary Injunction. (ECF No. 211.) The Court will address that Motion in a separate ruling.

³ Because the Court is able to resolve the cross-motions on the papers, Grace’s request for a hearing (ECF No. 204) will be denied.

II. BACKGROUND⁴

GWA and Grace compete in the manufacture and sale of carbon monoxide (“CO”)-carbon dioxide (“CO₂”) combustion promoters, which are products used in the petroleum refining process. At a high level, GWA alleges that it had a business relationship with Grace, and that Grace, having learned “the details of Aru’s crown jewel technology and business case” (Am. Compl. ¶ 3 (ECF No. 18 at 3)), then severed that relationship with GWA, copied GWA’s patented combustion promoter technology and sold it as Grace’s own, and mounted a marketing campaign denigrating GWA’s products to customers.

The relationship between GWA and Grace was not always contentious. Starting in 2018 and continuing for the next several years, the firms collaborated in various ways, including by entering into a joint marketing agreement, sharing technical information, and discussing partnering in distribution and sales. (*See* Am. Compl. ¶¶ 48–71 (ECF No. 18 at 16–23); Am. Answer ¶¶ 45–70 (ECF No. 25 at 8–13).) The relationship began to sour in early 2021, when Grace terminated the joint marketing agreement (*see* Am. Compl. ¶ 75 (ECF No. 18 at 24); Am. Answer ¶ 75 (ECF No. 25 at 13)), but the parties continued exploring possible collaboration opportunities through September 2022 (Am. Answer ¶ 6 (ECF No. 18 at 4); Am. Compl. ¶ 6 (ECF No. 25 at 2)). The relationship had fully ruptured by October 2022, when GWA filed the instant suit.

The operative Amended Complaint alleges one count of patent infringement under 35 U.S.C. § 271(a), and one count of false advertising in violation of the Lanham Act, 15 U.S.C. § 1125(a)(1)(B).

⁴ The facts recited in the Background are undisputed unless otherwise noted.

A. The Patent-in-Suit⁵

The patent-in-suit is U.S. Patent No. 11,224,864 (“the ’864 Patent”), which, in January 2022, was issued to GWA founder Guido William Aru and assigned to Cochise Technology, LLC, and which claims priority to patent applications submitted in 2018 and 2019. (Am. Compl. ¶¶ 2, 35; Am. Answer ¶ 35 (ECF No. 25 at 7).)

The ’864 Patent is directed toward a CO to CO₂ combustion promoter. A combustion promoter is a small particle, less than a millimeter in length or diameter, that is used in fluid catalytic cracking (“FCC”), a process for refining crude oil into higher value products such as gasoline. (Am. Compl. ¶¶ 15–24 (ECF No. 18 at 6–9).) As their name suggests, CO to CO₂ combustion promoters help convert gaseous CO inside the FCC unit into CO₂, which is advantageous because excess CO in the FCC unit can lead to “afterburning,” which can cause significant damage to the FCC equipment. (*Id.* ¶¶ 19–21 (ECF No. 18 at 8); Am. Answer ¶¶ 19–21 (ECF No. 25 at 4–5).) CO to CO₂ combustion promoters consist of a porous support particle, often made of alumina, impregnated with Group VIII noble metals (typically platinum or palladium).⁶ (Am. Compl. ¶ 102 (ECF No. 18 at 30); Am. Answer ¶ 102 (ECF No. 25 at 17).) These noble metals are the active component in promoting the conversion of CO to CO₂. (Am. Compl. ¶¶ 21–24 (ECF No. 18 at 8–9).)

The objective of the ’864 Patent is “to provide a CO to CO₂ combustion promoter which requires less noble metal to achieve the same level of CO combustion in the FCC process.” ’864 Patent at 2:17–20. Traditionally, CO to CO₂ combustion promoters have featured a uniform or

⁵ Much of the language in this section is taken from the Court’s claim construction opinion, *G.W. Aru, LLC v. W. R. Grace & Co.-Conn.*, 700 F. Supp. 3d 325, 330–332 (D. Md. 2023).

⁶ The parties agree that “Group VIII noble metals” refers to “a metal chosen from the group of platinum, palladium, iridium, ruthenium, and/or rhodium.” (ECF No. 72 at 2.)

homogenous distribution of noble metals throughout the support particle. (Am. Compl. ¶¶ 40–41 (ECF No. 18 at 13–14); Am. Answer ¶ 40 (ECF No. 25 at 8).) Figure 1 of the '864 Patent, reproduced below, shows a schematic of a cross section of a state-of-the-art combustion promoter particle featuring the traditional homogenous distribution of noble metals.

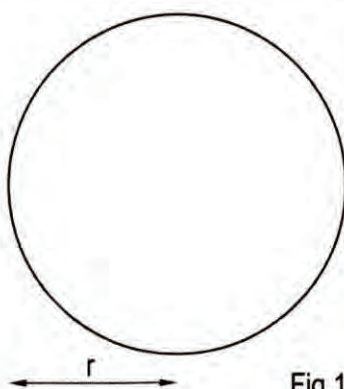
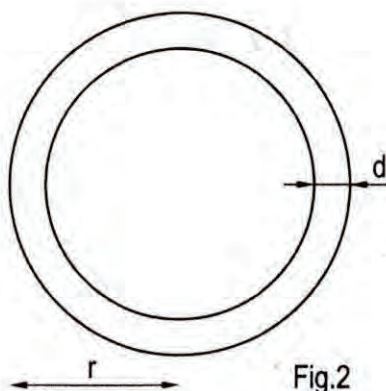


Fig.1

The purported key innovation of the '864 Patent is the disclosure of an “eggshell” distribution for noble metals in a combustion promoter particle, as opposed to the traditional homogenous distribution. In the eggshell design featured in the patent-in-suit, the noble metals are concentrated toward the surface of the combustion promoter particle, rather than being evenly distributed throughout the particle. (*Id.* at 14.) Figure 2 of the '864 Patent, reproduced below, shows a schematic of a cross section of the claimed combustion promoter particle. The region that appears to be an outer ring around the circle is described as the “outer eggshell” of the particle, which has a thickness (*d*) that may range between 1 to 10 microns. '864 Patent at 11:21–27. This outer eggshell contains “almost all” of the noble metals. *Id.*



The specification teaches that the claimed invention can be made by mostly filling the pores of the base particle with a filler material such as water or oil, then introducing the particles to an aqueous solution containing the noble metals, then drying or calcinating the particle. '864 Patent at 8:43–57. This process creates a particle in which the noble metals are distributed mostly toward the surface of the particle, similar to how an eggshell is located toward the surface of an egg.

According to GWA, the advantage of the claimed eggshell design is that it “greatly reduces the amount” of noble metals that must be added to the combustion promoters, which is beneficial because noble metals are “very expensive.” (ECF No. 18 at 14, 9.) In essence, GWA’s theory is that the conventional homogenous distribution of noble metals leads to wasted noble metal in the middle of the support particle, where it will never have the opportunity to perform its task of promoting the combustion of CO into CO₂. '864 Patent at 3:2–13. GWA also contends that the eggshell design inherently results in reduced emissions of nitrogen oxides (“NO_x”), which are environmentally harmful pollutants that are heavily regulated. (Am Compl. ¶¶ 23, 33 (ECF No. 18 at 9, 11).)

Claim 1 of the '864 Patent, the sole independent claim, recites as follows:

What is claimed herein is:

1. A CO to CO₂ combustion promoter comprising microsphere sized porous particles, each microsphere sized porous particle having a diameter of less than 1 mm, and independently comprising:

silica, alumina, or mixtures thereof; and

one or more Group VIII noble metals distributed in the particle as an eggshell such that a higher concentration of the one or more Group VIII noble metals is present in the outer region of the microsphere sized porous particle as compared to the concentration of the one or more Group VIII noble metals in the centre of the microsphere sized porous particle.

'864 Patent at 14:45–57.

The Court has previously issued the following constructions of disputed terms in Claim 1:

- i. the phrase “CO to CO₂ combustion promoter” is limiting;
- ii. “combustion” means “a process of oxidation that releases heat and usually light”;
- iii. “each microsphere sized porous particle” means “every one of the microsphere sized particles considered individually”;
- iv. “microsphere sized” means “spherical particles as small as 1 micron in diameter and as large as 1,000 microns”;
- v. “eggshell” means “a structure with an outer layer or shell surrounding an inner layer that is chemically distinct from the outer layer”;
- vi. “outer region” is given its plain and ordinary meaning; and
- vii. “centre” means “a region distinguishable from the outer region of the particle.”

G. W. Aru, LLC v. W. R. Grace & Co.-Conn., 700 F. Supp. 3d 325, 353–54 (D. Md. 2023) [hereinafter “*GWA I*”] (ECF No. 110).

GWA contends that Grace’s Optimized CPP infringes the ’864 Patent. Grace developed Optimized CPP around December 2020. (Am. Answer ¶ 4 (ECF No. 25 at 2).) As will be discussed in further detail below, it is undisputed that Optimized CPP meets several of the limitations of

Claim 1. But the parties dispute other issues, most notably whether Optimized CPP has an “eggshell” design of the kind disclosed in the ’864 Patent.

B. The Challenged Advertisements

In addition to asserting a claim for patent infringement, GWA challenges a series of advertisements that Grace made in 2022 that touted the supposed advantages of Optimized CPP over the product an unnamed competitor, which Grace later confirmed to customers was GWA. Grace made the challenged statements in the second quarter 2022 issue of PTQ, a United Kingdom-based trade magazine for the petroleum industry; on a blog post on Grace’s website; and in direct outreach to certain customers. (*See* ECF No. 180-1 at 11–12.)

The Court will discuss the substance of these advertisements in Part IV.A.2 below. In short, in the advertisements, Grace claims to have developed a product that is at least superficially very similar to the ’864 Patent, and Grace claims that its invention performs better than its competitor’s. GWA argues that these advertisements were literally false, and that they served to unfairly denigrate GWA’s products in the marketplace.

C. Procedural History

This case has been heavily litigated over the past two years. The Court will not provide an exhaustive catalog of every dispute between the parties to date, but the key moments in the life of this case are as follows.

First, pursuant to *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996), the Court construed certain disputed terms in Claim 1 of the ’864 Patent. The Court held a claim construction hearing in October 2023 and issued its Memorandum and Order on claim construction later that month. *GWA I*, 700 F. Supp. 3d 325 (ECF No. 110). The same day as the Court’s claim construction ruling, the Court denied GWA’s request for leave to file a Second Amended

Complaint, which would have added a claim against Grace for unfair competition under Maryland common law. (ECF Nos. 108, 109.)

In December 2023, the Court held a hearing on GWA's Motion for Preliminary Injunction (ECF No. 41) with respect to Grace's allegedly false advertisements. In a ruling from the bench, the Court granted the Motion for Preliminary Injunction in part, finding that one category of challenged statements (pertaining to Grace's statement that its combustion promoter product had a higher proportion of noble metal at the "outer surface" of the particle) was likely to be literally false. (*See* Hrg. Tr., ECF No. 183 at 65–66.) The Court also held that GWA was likely to prevail on the other elements of a Lanham Act claim with respect to that category of statements, and that the factors set forth in *Winter v. Natural Resources Defense Council*, 555 U.S. 7 (2008), supported entry of a limited preliminary injunction. (*See* Hrg. Tr., ECF No. 183 at 65–70.) That preliminary injunction, which remains in effect, bars Grace from disseminating advertisements stating that its combustion promoters have a higher proportion of noble metals at the outer surface of the particle. (ECF No. 123.) The Court denied GWA's request for an injunction with respect to certain other challenged statements, and also denied GWA's request for a broader preliminary injunction that would have required Grace to retract certain statements. (ECF No. 128-1 at 69.)

Meanwhile, the parties have engaged in extensive discovery, and the Court has resolved numerous disputes pertaining to sealing and other discovery matters. (*See, e.g.*, ECF Nos. 45, 81, 97, 148, 170, 207.) Fact discovery concluded on April 15, 2024 (*see* ECF No. 148), and expert discovery concluded on July 1, 2024 (*see* ECF No. 120).

GWA filed its Motion for Partial Summary Judgment on August 12, 2024 (ECF No. 180), and Grace filed its Cross-Motion for Summary Judgment on September 6, 2024 (ECF No. 189).

GWA's Motion for Partial Summary Judgment requests that the Court enter summary judgment in its favor and against Grace by concluding that:

- i. three categories of GWA's challenged advertisements (1) are literally false; (2) constitute commercial speech; (3) are misleading as a matter of law; (4) are material; and (5) were placed in interstate commerce;
- ii. Grace's Optimized CPP infringes four limitations of the '864 Patent; and
- iii. the '864 Patent is not invalid on the basis of anticipation or lack of enablement.

Grace, meanwhile—in addition to contesting GWA's entitlement to summary judgment—cross-moves for summary judgment in its favor on the following grounds:

- i. the '864 Patent is invalid on the basis of (1) indefiniteness and (2) anticipation;
- ii. Optimized CPP does not infringe the '864 Patent because GWA disavowed products made using single-step impregnation;
- iii. GWA fails to show patent infringement because it has not introduced evidence of the concentration of noble metals in the accused products; and
- iv. GWA fails to show patent infringement with respect to Optimized CPP manufactured in Worms, Germany.

The Court will address each of these issues in turn.

III. LEGAL STANDARD

Under Rule 56, a party seeking summary judgment must show that there is no genuine dispute as to any material fact and that the party is entitled to judgment as a matter of law. Fed. R. Civ. P. 56(a). A party may move for summary judgment as to the entirety of a claim or defense, or as to any part thereof. *Id.* The moving party has the burden of demonstrating the absence of any genuine dispute of material fact. *Adickes v. S. H. Kress & Co.*, 398 U.S. 144, 157 (1970). In

proving the presence or absence of a genuine dispute, either party may point to materials in the record, such as admissions, stipulations, depositions, documents, and electronically stored information. Fed. R. Civ. P. 56(c). In determining whether a genuine dispute exists, the Court views the evidence in the light most favorable to the nonmoving party and draws all reasonable inferences in that party's favor. *Anderson v. Liberty Lobby*, 477 U.S. 242, 255 (1986); *Tolan v. Cotton*, 572 U.S. 650, 657 (2014) (per curiam).

When, as here, the Court is faced with cross-motions for summary judgment, the Court “review[s] each motion separately on its own merits to determine whether either of the parties deserves judgment as a matter of law.” *Rossignol v. Voorhaar*, 316 F.3d 516, 523 (4th Cir. 2003) (internal quotation omitted); *see also* 10A Charles Alan Wright & Arthur R. Miller, Federal Practice and Procedure § 2720 (4th ed. 2024). In so doing, the Court “must take care to resolve all factual disputes and any competing, rational inferences in the light most favorable to the party opposing that motion.” *Rossignol*, 316 F.3d at 523 (internal quotation omitted).

IV. GWA'S MOTION FOR PARTIAL SUMMARY JUDGMENT

A. False Advertising

GWA challenges various claims that Grace made touting the purported advantages of its Optimized CPP combustion promoter products. The statements were made in an article Grace published in the second quarter 2022 issue of PTQ, a trade magazine for the petroleum refining industry. (See ECF No. 18-3.) These claims also appear in substantially the same form in a blog post on Grace's website dated April 14, 2022. (ECF No. 18-4.) And, Grace made similar statements, sometimes with greater elaboration, in contemporaneous direct email outreach to customers. (See, e.g., ECF No. 180-1 at 12 (citing materials from the record).) GWA breaks down the challenged claims into three categories: (1) Grace's claims about the improved performance of

its product versus a competitor (the “comparative performance claims”); (2) Grace’s claims that its product results in lower NOx emissions (the “NOx claims”); and (3) Grace’s claims about noble metal on the outer surface of its combustion promoter particle (the “outer surface claims”).

The Court will begin by articulating the legal principles applicable to a false advertising claim. In short, and as described in more detail below, a false advertising claim requires a showing that the challenged statements were material, deceptive, and placed in interstate commerce, and that the plaintiff was injured as a result. *Verisign, Inc. v. XYZ.COM LLC*, 848 F.3d 292, 298–99 (4th Cir. 2017). Then, the Court will analyze each of the elements of GWA’s claim.

With respect to the comparative performance claims, the Court concludes that there is no genuine dispute that the advertisements are literally false and, because this category of claims is literally false, deception is presumed as a matter of law. The Court also concludes that there is no genuine dispute that the challenged advertisements constitute commercial advertising and were placed in interstate commerce. However, the Court finds that there remain genuine disputes of material fact as to the elements of materiality and injury, which preclude summary judgment in GWA’s favor on the comparative performance claims.

With respect to the NOx and outer surface claims, the Court concludes that there is no genuine dispute that the challenged advertisements constitute commercial advertising and were placed in interstate commerce. However, the Court concludes that there remain genuine disputes of material fact as to the advertisements’ falsity, materiality, deception, and injury, such that summary judgment is not appropriate.

1. Legal Standard

The Lanham Act prohibits the “false or misleading description of fact, or false or misleading representation of fact, which . . . in commercial advertising or promotion, misrepresents the nature, characteristics, qualities, or geographic origin of his or her or another person’s goods, services, or commercial activities.” 15 U.S.C. § 1125(a)(1). A plaintiff asserting a false advertising claim under the Lanham Act must establish that:

(1) the defendant made a false or misleading description of fact or representation of fact in a commercial advertisement about his own or another’s product; (2) the misrepresentation is material, in that it is likely to influence the purchasing decision; (3) the misrepresentation actually deceives or has the tendency to deceive a substantial segment of its audience; (4) the defendant placed the false or misleading statement in interstate commerce; and (5) the plaintiff has been or is likely to be injured as a result of the misrepresentation, either by direct diversion of sales or by a lessening of goodwill associated with its products.

Verisign, 848 F.3d at 298–99 (citation omitted). “[A]t least one statement must satisfy all five elements to constitute a Lanham Act violation.” *De Simone v. Alfasigma USA, Inc.*, 847 F. App’x 174, 182 (4th Cir. 2021).⁷

To establish the falsity element, a plaintiff may either show that the statement is “literally false,” or else that the statement is “impliedly false,” meaning that the statement, “although literally true, [is] likely to mislead and to confuse consumers given the merchandising context.” *PBM Prods., LLC v. Mead Johnson & Co.*, 639 F.3d 111, 120 (4th Cir. 2011) (citation omitted). If the plaintiff can show that the statement is literally false, then “a violation may be established without

⁷ Additionally, a threshold requirement (in effect a sixth element) is that the challenged statement constitute commercial speech. *Metro. Reg’l Info. Sys., Inc. v. Am. Home Realty Network, Inc.*, 948 F. Supp. 2d 538, 553 (D. Md. 2013). Plaintiff’s opening brief and the evidence and authority cited therein persuasively establish that Grace’s advertisements constitute commercial speech (*see* ECF No. 180-1 at 26–28), and Grace implicitly concedes the issue by not responding to it in its opposition briefing, *see Md. Elec. Indus. Health Fund v. MESCO, Inc.*, Civ. No. ELH-12-505, 2014 WL 853237, at *7 (D. Md. Feb. 28, 2014) (collecting cases). Thus, the Court finds that this element is met, and this Memorandum will not analyze this issue further.

evidence of consumer deception.” *Id.* (citation omitted). But if the statement is merely impliedly false, then the plaintiff “must demonstrate, by extrinsic evidence, that the challenged [advertisements] tend to mislead or confuse consumers.” *Id.* (citation omitted) (alteration in original).

Here, GWA proceeds solely on a theory of literal falsity. (See ECF No. 180-1 at 30.) Determining whether a statement is literally false entails a two-step process: First, the Court must determine “the unambiguous claims made by the advertisement,” and second, it must determine “whether those claims are false.” *PBM Prods.*, 639 F.3d at 120 (quoting *Scotts Co. v. United Indus.*, 315 F.3d 264, 274 (4th Cir. 2002)). “A literally false message may be either explicit or conveyed by necessary implication when, considering the advertisement in its entirety, the audience would recognize the claim as readily as if it had been explicitly stated.” *Id.* (citation omitted). If, however, the claim is ambiguous “or merely suggestive” then it cannot be literally false. *Scotts*, 315 F.3d at 275–76 (citation omitted).

The literal falsity test is slightly relaxed when the allegedly false claims purport to be validated by testing:

When an advertising claim of favorable fact either expressly or impliedly asserts that the fact is testor study-validated, the fact of the validation becomes an integral and critical part of the claim. Such a claim may therefore be proven literally false by showing only that the test asserted to validate it did not in fact do so. On the other hand, where the claim is made baldly, with no assertion of test or study validation, its literal falsity may only be proven by proof that the favorable fact baldly asserted is false.

C.B. Fleet Co. v. SmithKline Beecham Cons. Healthcare, L.P., 131 F.3d 430, 435 (4th Cir. 1997).

Claims purporting to be test-validated are sometimes referred to as “tests prove” or “establishment” claims. See *Osmose, Inc. v. Viance, LLC*, 612 F.3d 1298, 1309 (11th Cir. 2010).

2. Falsity

a. *Comparative Performance Claims*

The comparative performance claims appear in the PTQ article, the April 2022 Grace blog post, and in promotional materials relating to Grace's Optimized CPP product—a supposed improvement over Grace's regular CPP product, and which Grace sent to at least ten identified refiners in the United States. (See ECF Nos. 18-3, 18-4; ECF No. 180-1 at 12 (citing materials from the record).)

The PTQ article makes the following claims:

A customer performed a trial comparing Grace's Optimized CPP technology versus a competitor's lower palladium promoter. Figure 1 shows the relative CO promoter usage rate for Optimized CPP versus the competitor promoter. On average, the usage rate for Optimized CPP decreased by 64%.

The relative change in afterburn when switching from the competitor promoter is shown in Figure 2. Even though there was a lower usage rate of Optimized CPP, the afterburn was reduced by 11%.

(ECF No. 18-3 at 3.) The figures referenced in that article are reproduced here:

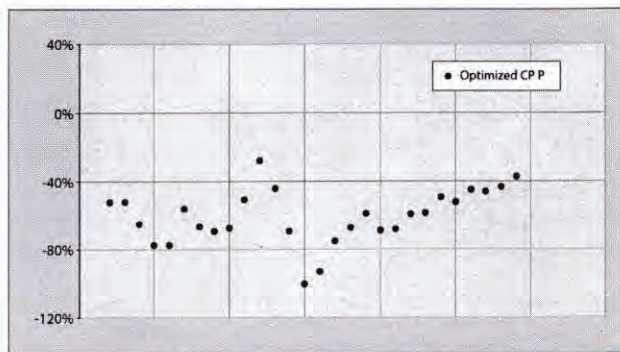


Figure 1 Relative change in usage rate for Optimized CP P vs a competitor promoter

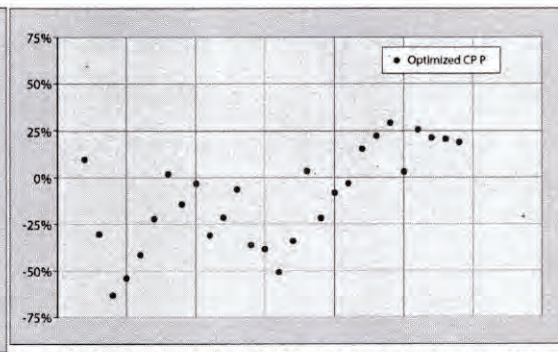


Figure 2 Relative change in afterburn for CP P and Optimized CP P vs a competitor promoter

(*Id.* at 2–3.)

Grace informed multiple customers that the “competitor promoter” identified in these tests was a GWA combustion promoter. (See, e.g., ECF No. 180-41 at 2 (May 6, 2021, email from a Grace representative to a Marathon employee stating—in response to the question, “[w]hat is the

competitor product that CPP and Optimized CPP were trialed against?”—that “[t]he commercial test was against the G. W. Aru product”); ECF No. 180-56 at 2 (similar email exchange between Grace and Valero).) The test occurred at the Valero Wilmington facility in California. (ECF No. 180-46 at 7.)

Materials that Grace sent directly to customers claimed a 62% reduction in usage rate for CPP and 64% lower rate for Optimized CPP, as well as an 11% reduction in afterburn for Optimized CPP. (ECF No. 180-1 at 12 (citing materials from the record).)

According to GWA, the entirety of the raw data that Grace relied on for its comparative performance claims is located in a file bearing Bates number GRACE_0000047 [hereinafter “GRACE_47”] (ECF No. 181-20). In support of this contention, GWA cites to the following statements:

- An email dated April 3, 2023, from Grace’s counsel to GWA’s counsel, stating “[w]e confirm that GRACE_0000047 contains raw customer trial data that Grace used to prepare the charts in Exhibits C and D.” (ECF No. 180-24 at 10.) Exhibits C and D refer to the PTQ article and Grace blog post, respectively, which were attached as exhibits to the Amended Complaint. (ECF Nos. 18-3, 18-4.)
- An email dated April 19, 2023, from Grace’s counsel to GWA’s counsel, stating “our client has confirmed once again its belief that the data used to prepare the charts in Exhibits C and D originated from GRACE_0000047. . . . Grace is continuing to investigate whether there is any additional data, but presently is unaware of any.” (ECF No. 180-24 at 8.)
- Various statements from Dr. Colin Baillie, a Grace product manager, who testified in a March 2024 deposition that GRACE_47 was the sole data source on which Grace relied

when it made the comparative performance claims in the PTQ article and blog post.

(*See generally* ECF No. 181-5.)

Upon a careful review of the record, the Court agrees with GWA that there is no genuine dispute that GRACE_47 comprises the entirety of the raw data on which Grace relied when it made the comparative performance claims. Dr. Baillie, Grace's corporate designee on the subject—and the sole individual identified in the PTQ article as Grace's contact (*see* ECF No. 18-3 at 3)—confirmed this to be the case repeatedly in his deposition. (*See* ECF No. 180-9 at 24 (Q: "So I just want to confirm, before we get into this, that GRACE_47 is the raw customer trial data that Grace used and relied upon to prepare the statements, charts, and graphs in the PTQ article, Grace's blog post, and Grace's promotional, technical, and informational datasheets, correct?" A: "Correct."); *id.* at 32 (Q: "GRACE_47 is the data that underlies the charts and figures in the PTQ article, right?" A: "That is my understanding, yes."); *id.* at 69 (Q: "The factual bases that Grace says support the statements in the PTQ article relating to Figure 1 and Figure 2 is the data that we looked at in GRACE_47, correct?" A: "That is correct." Q: "And there's no other testing or other data that Grace contends supports the truth of the statements in the PTQ article relating to Figure 1 and Figure 2 other than GRACE_47, correct?" A: "That's correct."); *id.* at 73 ("Q: "[Y]ou've testified under oath that GRACE_47 presents all of the data that backs up the support for the PTQ article, the blog post, and all of the Optimized CP®P-related ads, correct?" A: "That's correct.").)

Grace tries to rebut this evidence by arguing that GRACE_47 "only contains the trial data for CP® P (from November 8, 2020 to December 1, 2020) and Optimized CP® P (from December 2, 2020 to January 17, 2021)." (ECF No. 189 at 44 (citing ECF Nos. 181-20; 42-15).) Meanwhile, according to Grace, the data for GWA's combustion promoter, GFP-PD (against which Grace's products were compared) ran from June 1, 2020, to July 31, 2020, and these data were not in

GRACE_47. (*Id.* (citing ECF No. 42-1 at 32).) Thus, according to Grace, the data in GRACE_47 were not the complete set of data needed to evaluate the comparative performance claims. This argument misses the mark. The issue is not whether GRACE_47 contains all of the relevant data that would be necessary for making the comparative performance claims; the issue is what data Grace *actually relied on* when it made those claims.⁸ And Grace has provided no evidence to contradict the statement of its own corporate designee that the only evidence that Grace relied on was the data contained in GRACE_47. In any event, Dr. Baillie agreed that even assuming that Grace *did* also rely on the June 1, 2020–July 31, 2020 data, those data could not be the basis of a valid comparison for comparing GWA’s product to that of Grace. (*See* ECF No. 180-9 at 39–40.)

In addition to being undisputed that GRACE_47 contains the raw data on which Grace relied for its comparative performance claims, it is also undisputed—based on testimony from Dr. Baillie—that the data in GRACE_47 do not support the comparative performance claims. (*See, e.g.*, ECF No. 180-9 at 55 (Q: “[T]he data in GRACE_47 does not, in fact, support a 64% lower rate for Optimized CP®P versus GWA’s promoter, right?” A: “It’s not consistent with 64%.”).) In fact, Dr. Baillie conceded that in at least one respect, the data in GRACE_47 showed that Optimized CPP performed 26% *worse* than baseline, rather than 64% better. (*Id.* at 36.) As for Grace’s statement about an 11% reduction in afterburn, Dr. Baillie admitted that in GRACE_47 “[t]here’s no data on afterburn.” (*Id.* at 37.) Further, in August 2021, Grace’s internal research indicated that its claims of 62% and 64% improvements as compared to GWA’s products were

⁸ If anything, Grace’s argument that the data in GRACE_47 are incomplete serves only to reinforce the conclusion that the comparative performance claims are false, because it is undisputed that Grace relied solely on GRACE_47 in making those claims.

more accurately characterized as 52% and 30%, respectively. (See ECF No. 180-9 at 63; ECF No. 181-25 at 9.)⁹

Having concluded that the data in GRACE_47 are not consistent with Grace's comparative performance claims, the Court finds that there is no genuine dispute that these claims are literally false. There is no dispute that the comparative performance claims expressly assert that they are test validated. See *C.B. Fleet*, 131 F.3d at 436. Thus, in the context of this case, GWA need only prove that "the test asserted to validate" Grace's comparative performance claims—*i.e.*, the test underlying the data reflected in GRACE_47—"did not in fact do so." *Id.* at 435; see also *Solsys Med., LLC v. Organogenesis, Inc.*, Civ. No. 4:18-30, 2018 WL 10579659, at *6 (E.D. Va. Dec. 12, 2018) (collecting cases). In other words, to show literal falsity, it is enough that the testing that Grace cited in its advertisements did not in fact support the claims Grace made about the product. See *Osmose*, 612 F.3d at 1310 (11th Cir. 2010) (holding that a plaintiff challenging a "tests prove" claim "d[id] not have to affirmatively prove that [defendant's claims] are false; rather Osmose has to prove only that Viance's tests do not support Viance's conclusions."). GWA is not required to further prove that the Optimized CPP does *not* in fact have a 64% decrease in usage rate or an 11% reduction in afterburn. In short, because GWA has made the requisite showing that the tests on which Grace relied do not support its comparative performance claims, it is entitled to summary judgment on the question of literal falsity on this category of claims.

Finally, the Court agrees with GWA that Grace's contention that "[f]actual disputes remain regarding the source of the underlying trial data" (ECF No. 189 at 44) is a non-sequitur. According

⁹ GWA has also produced the report of Thomas Peter Ventham, a chemical engineer, who analyzed the data in GRACE_47 and concluded that the dataset does not support the comparative performance claims. (See generally ECF No. 181-14.) The Court need not rely on this evidence in light of Grace's own corporate designee conceding the issue; that said, the Court observes that Grace has not proffered any evidence to contradict the findings of the Ventham report.

to the evidence proffered by Grace, the underlying data came from Valero Wilmington, and there may have been some errors in the data because of a change in site engineers during the trial period. (*See id.*) But Grace has not pointed to any authority (nor is the Court aware of any) that would absolve Grace of an independent responsibility to ensure the accuracy of its advertising claims, even if the data underlying those claims came from a third party. It is not genuinely disputed that GRACE_47 contains the raw data on which Grace relied when it made the comparative performance claims; if the data do not support those claims, then the claims are false. Questions of who prepared the underlying data, what caused the errors, and whether a defendant knew the statements were false at the time, are of no moment to the question of falsity.¹⁰ Thus, while there may be a dispute about the source of the data, this dispute is not material. *See Anderson*, 477 U.S. at 248 (“Only disputes over facts that might affect the outcome of the suit under the governing law will properly preclude the entry of summary judgment. Factual disputes that are irrelevant or unnecessary will not be counted.”).

b. NO_x Claims

The challenged NO_x claims appear in the Q2 2022 PTQ article:

The greater the percentage of either palladium or platinum at the surface of the particle, the more accessible the metals are to provide an effective activity response. By incorporating a modified alumina, Grace’s optimised CO promoters (both platinum and palladium based technologies) can provide the same CO promotion

¹⁰ Grace cites to a Second Circuit opinion for the proposition that “in a false advertising claim, it is relevant whether the alleged statements are fabricated or fraudulently created.” (ECF No. 189 at 46 (citing *Ony, Inc. v. Cornerstone Therapeutics, Inc.*, 720 F.3d 490, 498 (2d Cir. 2013).) But *Ony* is readily distinguishable. In that case, the alleged misstatements occurred in a peer-reviewed scientific journal and concerned an area of legitimate ongoing scientific debate. 720 F.3d at 493–94, 497. The Second Circuit held that, in the context of “an ongoing scientific discourse about which there is considerable disagreement,” unintentional errors in scientific literature are not actionable under the Lanham Act. *Id.* at 497–98. But here, there is no contention that the analysis of the data on which Grace relied for the comparative performance claims is the subject of legitimate scientific debate; on the contrary, it seems that the analysis is fairly straightforward for someone with the relevant technical knowledge. Moreover, Grace’s analysis was not published in a peer-reviewed scientific journal, but rather in a trade magazine and on its own website.

activity at a lower metals level, with an additional benefit of lower NO_x emissions. Based on this new technology, Grace has commercialized Optimized CP P, a low-NO_x CO promoter that contains lower palladium levels while maintaining CO promotion activity.

(ECF No. 18-3 at 3.) Similar statements occurred in Grace's April 2022 blog post. (ECF No. 18-4 at 3.)

GWA argues that these statements are literally false because Grace has no data supporting these claims. (ECF No. 180 at 19.) During his deposition, Dr. Baillie stated that the data on which Grace relied for its NO_x claims came from GRACE_47 and a 2009 study on regenerator test unit ("RTU") data, which the parties refer to as "Ziebarth Exhibit 91." (ECF No. 181-5 at 69–70.)

The Court finds that there is a genuine dispute as to whether the NO_x claims are literally false. For one, unlike the comparative performance claims, the NO_x claims do not expressly reference any testing done to validate them. Thus, read in the context of the entire PTQ article, and viewing the evidence in the light most favorable to Grace, a reasonable jury could find that the NO_x claims did not purport to be test validated but were instead "made baldly, with no assertion of test or study validation." *C.B. Fleet*, 131 F.3d at 435; *see also id.* at 436 ("[W]hether an advertising claim implicitly, though not expressly, asserts that it is test-validated must be considered a question of fact."). Moreover, the fact that GWA subsequently learned through discovery that Grace relied on testing to make the NO_x claims is immaterial to the question of whether Grace's NO_x claims in the challenged advertisements purported to be test validated:

The fact that it was later revealed in litigation that the claim was test-based does not alter this. The relevant question for determining the required proof is whether the advertisement made an assertion of test-validation to the consumer public. If it was not asserted in the advertised claim, it was not made part of the claim being challenged as false. If it is later revealed, through discovery or otherwise, that the claim was test-based, the claimant obviously may challenge the test's reliability in attempting to prove false the advertised fact, but falsity of that fact remains the required object of proof.

Id. If a jury found that the NOx claims are not in form of a “tests prove” claim, then the burden would be on GWA to prove “that the favorable fact baldly asserted is false.” *Id.* at 435. Here, GWA has not produced uncontested evidence showing that Grace’s Optimized CPP does *not* result in lower NOx emissions; instead, they simply argue that the data on which Grace relied for the claim did not support it.

Further, even if the NOx claims were undisputably “tests prove” claims, there would still be a genuine dispute as to whether the underlying data support those tests. Grace contends that its “Optimized CPP” product uses less palladium and, according to the declaration of Dr. Ziebarth, “Grace testing showed that decreasing the [palladium] level on the CPP additive resulted in lower NOx emissions.” (ECF No. 57-5 at 9–10 (citing Ziebarth Ex. 91, ECF No. 57-3).) GWA makes much of the fact that Ziebarth Exhibit 91 is over ten years old and thus Grace had no current data on its Optimized CPP combustion promoters’ NOx emissions. But, viewing the evidence in the light most favorable to Grace, there is a genuine factual question as to whether Grace could have reasonably determined that, given Grace’s awareness of research indicating that reduced noble metal concentrations generally yield reduced NOx concentrations, Grace’s own new low-palladium combustion promoter must *also* have lower NOx emissions. GWA contends that the science does not support Grace’s conclusions. (See ECF No. 194-1 at 14.) But this is a factual dispute that cannot be resolved at this stage.

Finally, the Court observes that Grace did make more detailed, “tests prove”-style claims in its follow-up email communication to certain customers. (See, e.g., ECF No. 180-66.) But, it is not clear that this supplemental outreach constituted “commercial advertising or promotion” within the meaning of 15 U.S.C. § 1125(a)(1)(B). See *Metro. Reg’l Info. Sys. v. Am. Home Realty Network*, 948 F. Supp. 2d 538, 553 (D. Md. 2013) (holding that, to qualify as commercial

advertising or promotion, “the representations . . . must be disseminated sufficiently to the relevant purchasing public to constitute advertising or promotion within that industry.” (citation and internal quotation marks omitted)). Emails sent to a targeted subset of potential customers as part of a coordinated sales campaign may be sufficiently disseminated to constitute “commercial advertising or promotion.” *See Handsome Brook Farm, LLC v. Humane Farm Animal Care, Inc.*, 700 F. App’x 251, 262 (4th Cir. 2017) (holding that a defendant’s email, which was sent to 36 major retailers who were considering switching their business to a rival, was sufficiently disseminated). Viewing the evidence in the light most favorable to Grace, however, a reasonable jury could find that Grace’s “tests prove” claims relating to NO_x were too sporadic and limited to constitute commercial advertising.

Thus, the Court finds that there exists a genuine dispute of material fact as to the falsity of the NO_x claims.

c. Outer Surface Claims

GWA asserts that the following claims, which appeared in the PTQ article and in substantially identical form in the Grace blog post, are literally false:

The process Grace uses to incorporate palladium and platinum onto the combustion promoter naturally leads to a particle where the majority of the metals are located at the surface. However, the advanced alumina used for the optimised CO promoters results in an even higher proportion of the metals residing on the outer surface of the particle.

(ECF No. 18-3 at 2–3.) The advertisement then goes on to tout the advantages of having a high percentage of noble metals on the outer surface of the combustion promoter particle. (*Id.*)

In support of its argument that the outer surface claims are literally false, GWA relies heavily on Grace’s statement in its Amended Answer that Grace “admits that its CP® CO to CO₂ combustion promoter is intended to have a uniform distribution of noble metal throughout the

promoter.” (Am. Answer ¶ 27 (ECF No. 25 at 5).) At the preliminary injunction stage, the Court found that Grace’s admission in its pleading supported a finding that the outer surface claims were likely to be literally false. (See ECF No. 183 at 65–66.) As the Court explained then:

Read in context, [the outer surface] statement necessarily implies that Grace’s combustion promoters have a majority of the noble metals on the exterior of the particle. But Grace has, by its own admission, conceded that its particles are intended to be homogenous (*see* Am. Answer ¶ 27 (ECF No. 25 at 5) (Grace stating that its particles are “intended to have a uniform distribution of noble metal throughout the promoter”)), and has produced no evidence showing that the particles have a greater proportion of noble metals toward the outer surface.

The Court agrees with Grace that the word surface on its own is ambiguous when referring to a porous particle because it could refer either to the outer surface of the particle or to the inner surfaces of the pores. (See ECF No. 57 at 15.) But [the outer surface claim] expressly refers to “outer surface.” (ECF No. 18-3 at 3.) And whatever depth one chooses to measure outer surface, a homogenous particle, necessarily, cannot have a higher concentration of noble metal at the outer surface. The concepts are just hopelessly in conflict.

(*Id.* at 66 (citations added for clarity).)

However, these findings, which were and remain preliminary, are not binding at the summary judgment stage. The difference in the standard of review between the preliminary injunction and summary judgment stages is critical:

The preliminary injunction and summary judgment standards are highly distinct. . . . In the context of [a] preliminary injunction, the court necessarily must weigh the evidence in order to determine the likelihood of success on the merits. In the context of summary judgment, such weighing of evidence is, of course, impermissible. Accordingly, any ruling on a preliminary injunction, does not preclude a different resolution on a more fully developed record.

N.C. State Conf. of the NAACP v. Hirsch, 720 F. Supp. 3d 406, 416–17 (M.D.N.C. 2024) (internal quotation marks and citations omitted).

Here, when viewed in light of the more exacting Rule 56 standard and the more fully developed record, the Court concludes that summary judgment in GWA’s favor on the outer surface claims is not warranted, Grace’s admission in its Amended Answer notwithstanding.

If this case were simply a false advertising action, then Grace's admission would conclusively establish the literal falsity of the "outer surface" claims. *See Everett v. Pitt Cnty. Bd. of Educ.*, 788 F.3d 132, 141 (4th Cir. 2015) ("A judicial admission is a representation made by a party that, unless allowed by the court to be withdrawn, is conclusive in the case." (internal quotation marks and citation omitted)); *Jessup v. Barnes Grp., Inc.*, 23 F.4th 360, 365 (4th Cir. 2022) ("A party is bound by the admissions of his or her pleadings." (cleaned up)). But GWA's own claim for patent infringement complicates the matter. To prevail on its patent infringement claim, GWA must prove that Grace's combustion promoter particle has a higher concentration of noble metals in the outer region of the particle as compared to the center. To prevail on the false advertisement claim, however, GWA must prove something that is close to the exact opposite—that Grace's particles do *not* have a higher concentration of noble metals on the particle's "outer surface." There is nothing wrong with pleading in the alternative, but the very fact that GWA is intent on pursuing both theories suggests that summary judgment on the question of the distribution of noble metals in Grace's products is premature.

As Grace persuasively argues, "GWA's own patent infringement claim creates a material factual dispute as to the literal falsity of the [outer region] claims." (ECF No. 189 at 41.) That is so because GWA contends, in the context of its patent infringement argument, that its testing shows that there is a higher concentration of noble metals in the "outer region" of Optimized CPP as compared to the center. *See infra* Part V.B.2. But if GWA is correct in this contention, then there is at least some basis for believing that there is also a higher concentration of noble metals in the "outer surface" of the particle. Although GWA insists that there is a meaningful difference between "outer surface" and "outer region," the evidence it submits on this point does not provide a clear explanation of how one could distinguish the outer surface of a microsphere from the outer

region.¹¹ And, although testing by GWA's putative expert purports to show that there was no noble metal detected on the outer surface of the accused product, a reasonable jury could find that the testing is not conclusive, because the depth chosen to measure the "outer surface" was somewhat arbitrary.¹²

Viewing the evidence in the light most favorable to Grace, the very fact that GWA contends that Grace's particle has a higher concentration of noble metals in the "outer *region*" creates a genuine dispute as to whether the particle must *also* have a higher concentration of noble metals at the "outer *surface*." On this issue, it helps to zoom out to see the most important disputes in this case. A crucial issue in this case—perhaps *the* crucial issue—is whether Grace's accused products have an eggshell design of the kind claimed in the '864 Patent. This is a question of fact, and one on which the parties strenuously disagree. Because that central issue is in dispute, the Court

¹¹ According to GWA, "[i]n geometric terms, the former is a three-dimensional *region* inside the particle and the latter is a two-dimensional *surface* defining the outside of the particle." (ECF No. 193 at 16.) In support of this contention, GWA has proffered the testimony of two industry participants who state that they understand the "surface" of a particle to be distinct from the outer region. (See ECF No. 193-5 at 15–17; ECF No. 193-11 at 13, 15, 16–17.) But neither of them provided a clear explanation of how one would be able to tell the difference between the outer surface and outer region of a microsphere other than by vague analogy to, for example, the "surface of a wiffle ball" (ECF No. 193-5 at 15) or the "surface of [a] table" (ECF No. 193-11 at 17). The Court will assume—without deciding—that there is a meaningful difference between the "outer surface" and the "outer region." But even if the two terms are distinct, the purported existence of a higher proportion of noble metal in the outer region at least raises a genuine factual question as to whether there is also such a higher concentration in the outer surface.

¹² GWA's employee and putative expert, Dr. Natalie Herring, purportedly determined that there is no detectable platinum or palladium in Grace's combustion promoters at a depth of 50 to 100 angstroms (Å) of the particle. (ECF No. 44 at 12.) An angstrom is equivalent to one ten-billionth of a meter. *Angstrom*, Merriam Webster Dictionary, <https://www.merriam-webster.com/dictionary/angstrom>. Dr. Herring chose this depth because a 2004 book chapter authored by Grace employees about measuring iron on FCC catalysts measured the depth of the "catalyst particle exterior surface" to a depth of 50 Å. (ECF No. 44 at 6.) But the fact that GWA employees had used a depth of 50 Å one time nearly twenty years ago for measuring a different kind of metal on the surface of combustion promoters does not establish that 50 to 100 Å is the depth that an ordinary consumer in the industry would associate with the word "surface." Dr. Herring's chosen depth is equivalent to 0.005 to 0.010 microns (ECF No. 57 at 19), and Grace has produced evidence showing that this depth is far too shallow to use as the only definition of "surface," as comparable patents have defined the surface of similar particles as extending for a depth of one hundred to one thousand microns. (*Id.* at 15.)

concludes that it would be premature to enter summary judgment in GWA's favor on the question of the literal falsity of the "outer region" claims. In short, there is a real dispute over the distribution of noble metals in Grace's combustion promoter particles. To hold that Grace's admission in its Amended Answer resolves this dispute—when GWA presents evidence that could be reasonably interpreted to contradict the admission—would be to elevate form over substance. For these reasons, summary judgment will be denied with respect to the outer surface claims.

3. Materiality

A statement is material when it is "likely to influence a consumer decision." *Verisign*, 848 F.3d at 298. A false statement can be material when it relates to an "inherent quality or characteristic" of a product. *De Simone v. VSL Pharms., Inc.*, 395 F. Supp. 3d 617, 627 (D. Md. 2019), *aff'd in relevant part sub. nom. Alfasigma USA*, 847 F. App'x 174 (quoting *Cashmere & Camel Hair Mfrs. Inst. v. Saks Fifth Ave.*, 284 F.3d 302, 311 (1st Cir. 2002)). Whether a challenged misrepresentation is material is ordinarily a question of fact to be decided by the jury. *Basile Baumann Prost Cole & Assocs., Inc. v. BBP & Assocs. LLC*, 875 F. Supp. 2d 511, 530 (D. Md. 2012); *see also Concordia Pharms., Inc. v. Method Pharms., LLC*, Civ. No. 3:14-00016, 2016 WL 1271082, at *10 (W.D. Va. Mar. 29, 2016); *Reynolds Consumer Prods., Inc. v. Handi-Foil Corp.*, Civ. No. 13-214, 2014 WL 794277, at *5 (E.D. Va. Feb. 27, 2014); *cf. Dunn v. Borta*, 369 F.3d 421, 427 (4th Cir. 2004) (stating, in the securities law context, that materiality is generally a question of fact for the jury).

There is a circuit split on the question of whether a false advertising plaintiff must demonstrate materiality when a challenged statement is literally false, and it does not appear that the Fourth Circuit has addressed the issue. *See Concordia Pharms.*, 2016 WL 1271082, at *9; *RoyaltyStat, LLC v. IntangibleSpring, Corp.*, Civ. No. 15-03940-PX, 2019 WL 13041260, at *9

n.8 (D. Md. Aug. 1, 2019). Neither party has briefed this issue, and both parties appear to presume that GWA must prove materiality. (*See* ECF No. 180-1 at 28–30; ECF No. 189 at 46–48.) Thus, the Court will assume, at least for this stage, that a plaintiff still has the burden of proving materiality even when a challenged statement is literally false.

In its ruling on GWA’s preliminary injunction request, the Court observed that when “the false statement goes to an ‘inherent quality or characteristic’ of the product, materiality can be inferred. This is especially so when the statement relates to a product’s touted cost efficiency.” (ECF No. 183 at 67 (cleaned up) (quoting *De Simone*, 395 F. Supp. 3d at 627).) GWA contends that, because the challenged misrepresentations refer to inherent qualities of Grace’s combustion promoters, it is entitled to a presumption of materiality. (*See, e.g.*, ECF No. 193 at 9.) But, as the Court has explained above, just because the Court found that a party is *likely* to prevail on the merits on an issue does not mean that it is necessarily entitled to summary judgment on that issue, with the benefit of a more comprehensive record and when viewing all evidence in the light most favorable to the nonmovant. In acknowledging this reality of the current posture, the Court in no way means to distance itself from its finding in the preliminary injunction stage that Grace’s advertisements are likely to be material.

GWA cites to many instances in which industry professionals testified that information about comparative performance of combustion promoter particles, the distribution of metal in combustion promoter particles, and the impact on NOx emissions are all material to a customer’s purchasing decision. (*See* ECF No. 180-1 at 29–30.) A reasonable jury may well find this evidence convincing. But, Grace has produced countervailing evidence that tends to show that the relevant customers are sophisticated industrial firms that would likely do their own testing before implementing a new product. (*See* ECF No. 189 at 46–48.) In short, whether Grace’s challenged

statements were likely to influence the purchasing decision of the relevant consumers is a disputed factual question that the Court cannot resolve now. Thus, summary judgment will be denied on the question of materiality.

4. Deception or Tendency to Deceive

Although deception is treated as a distinct element, a plaintiff need not provide evidence of deception if the plaintiff has shown that the challenged statement is literally false. *Verisign*, 848 F.3d at 304; *De Simone*, 395 F. Supp. 3d at 623 (“If an advertisement is literally false, a party can succeed on a false advertising claim without evidence of any consumer deception.”).

Because there is no genuine dispute that the comparative performance claims are literally false, deception or tendency to deceive is presumed as a matter of law. *See In re GNC Corp.*, 789 F.3d 505, 514 (4th Cir. 2015). Thus, the Court will not require GWA to present evidence of consumer confusion with respect to that category of statements. As to the outer surface and NOx claims, however, there are genuine disputes as to their veracity. And, GWA has not proffered evidence of consumer confusion or other evidence of deception at this stage.

Accordingly, summary judgment on the question of deception will be granted in GWA’s favor with respect to the comparative performance claims, and denied with respect to the NOx and outer surface claims.

5. Interstate Commerce

To be actionable under the Lanham Act, the challenged misrepresentation must have been placed in interstate commerce. *Verisign*, 848 F.3d at 298. It is well established that the use of the internet to communicate a message suffices to satisfy the interstate commerce element of a Lanham Act violation. *Handsome Brook Farm, LLC v. Humane Farm Animal Care, Inc.*, 193 F. Supp. 3d 556, 574 (E.D. Va. 2016), *aff’d*, 700 F. App’x 251 (4th Cir. 2017).

Here, the challenged statements appeared on Grace's website and in PTQ. Although PTQ is based in the United Kingdom, it is undisputed that PTQ is "distributed worldwide on the Internet, including throughout the United States," and that it is "widely read and highly respected among petroleum refinery operators who are the customers of GWA and Grace." (ECF No. 100-1 at 17.) Grace does not dispute that its advertisements were publicized online and thus were placed within interstate commerce. Accordingly, summary judgment will be granted to GWA on this element as to all three allegedly false claims.

6. Injury

Finally, GWA has not moved for summary judgment on the question of injury. (*See* ECF No. 181-1 at 9 (stating, to the contrary, that granting GWA's Motion for Partial Summary Judgment "would focus the false advertising issues for the jury on whether Plaintiffs were likely to be injured as a result of Grace's false claims and on remedies.")) Accordingly, summary judgment will not be granted on this element.

To summarize, with respect to the comparative performance claims, summary judgment will be granted in GWA's favor on the questions of falsity, deception, placement in interstate commerce, and the commercial nature of the speech, but will otherwise be denied. With respect to the NOx and outer surface claims, summary judgment will be granted in GWA's favor on the question of placement in interstate commerce and the commercial nature of the speech, but will otherwise be denied.

B. Patent Infringement

The Court next turns to GWA's request for partial summary judgment as to its patent infringement claim. A patent infringement determination comprises a two-step process; first, the Court must construe the asserted claims, and second, the Court must compare the accused product

against those claims as they have been construed. *Niazi Licensing Corp. v. St. Jude Med. S.C., Inc.*, 30 F.4th 1339, 1350 (Fed. Cir. 2022). “Infringement is assessed by comparing the accused device to the claims; the accused device infringes if it incorporates every limitation of a claim, either literally or under the doctrine of equivalents.” *MicroStrategy Inc. v. Bus. Objects, S.A.*, 429 F.3d 1344, 1352 (Fed. Cir. 2005) (cleaned up); *see also Linear Tech. Corp. v. Int’l Trade Comm’n*, 566 F.3d 1049, 1060 (Fed. Cir. 2009) (“To prove infringement, a patentee must show that a defendant has practiced each and every element of the claimed invention (internal quotation omitted)).

GWA seeks partial summary judgment on patent infringement, on the grounds that it is undisputed that Grace’s Optimized CPP meets certain of the claim limitations of the ’864 Patent. (ECF No. 180-1 at 31.) In particular, GWA recites four limitations of the ’864 Patent that Optimized CPP undisputably meets: (1) Optimized CPP is a “CO to CO₂ combustion promoter”; (2) Optimized CPP comprises “microsphere sized porous particles . . . having a diameter of less than 1 mm”; (3) Optimized CPP comprises alumina; and (4) Optimized CPP contains “one or more Group VIII noble metals,” namely, palladium. (*Id.* at 32–33.) In response, Grace concedes that it “does not dispute that the Accused Optimized CPP is a CO to CO₂ combustion promoter, or that it comprises microsphere sized porous particles having a diameter of less than 1mm.” (ECF No. 189 at 49.) Grace also states that it “does not dispute that the Accused Optimized CPP comprises alumina and palladium.” (*Id.*)

Although Grace concedes that the four limitations on which GWA moves for partial summary judgment are met, it nevertheless contends that summary judgment is inappropriate because, to be entitled to summary judgment on a patent infringement claim, GWA must “prove that the Accused Optimized CP® P particles meet *each and every limitation* in the asserted claims.”

(ECF No. 189 at 49 (emphasis in original).) Because there remain disputes about whether Optimized CPP meets at least two claim limitations—“each microsphere sized porous particle” and the eggshell requirement—Grace contends that summary judgment is wholly inappropriate. (*Id.*)

Grace’s argument against partial summary judgment on this issue is unavailing. Rule 56 permits a party to move for summary judgment on a “part of [a] claim or defense.” Fed. R. Civ. P. 56(a). Thus, by the terms of the Rule, a party seeking partial summary judgment need not establish that it is entitled to judgment on every element of a claim; it need only show that there is no genuine dispute as to some fact material to that claim. *See id.* advisory committee’s note to 2010 amendment (explaining that the Rule was amended to clarify that “summary judgment may be requested not only as to an entire case but also as to a claim, defense, or part of a claim or defense”). Grace does not contend that Rule 56 somehow operates differently in the context of a patent infringement claim. Indeed, courts routinely grant partial summary judgment of patent infringement on the grounds that there is no genuine dispute that an accused product meets some subset of the asserted claim limitations. *See, e.g., SynQor, Inc. v. Artesyn Techs., Inc.*, 709 F.3d 1365, 1372, 1379 (Fed. Cir. 2013) (affirming grant of partial summary judgment of infringement in favor of plaintiff on the question of whether the accused products met one of the asserted claim limitations); *Autoliv ASP, Inc. v. Hyundai Mobis Co.*, 552 F. Supp. 3d 1215, 1221 (M. D. Ala. 2021) (granting partial summary judgment of infringement as to some, but not all, limitations of the asserted claim); *Remediation Prods., Inc. v. Adventus Ams., Inc.*, Civ. No. 3:07-153-RJC-DCK, 2010 WL 1946999, at *24–25 (W.D.N.C. May 13, 2010) (same); *see also Fuma Int’l, LLC v. R.J. Reynolds Vapor Co.*, Civ. No. 1:19-260, 2021 WL 2073938, at *3 (M.D.N.C. May 24, 2021) (“Fuma can obtain partial summary judgment as to a particular claim element if it shows that, as

to that element, the accused product infringes either literally or under the doctrine of equivalents and that no reasonable fact finder could conclude otherwise.”).

Here, there is no genuine dispute that the accused Optimized CPP meets the following four limitations of Claim 1 of the '864 patent: (1) it is a “CO to CO₂ combustion promoter”; (2) it comprises “microsphere sized porous particles . . . having a diameter of less than 1 mm”; (3) it comprises alumina; and (4) it contains “one or more Group VIII noble metals,” namely, palladium. (See ECF No. 189 at 49.) Accordingly, partial summary judgment of infringement in GWA’s favor as to these limitations is appropriate, and will be granted.

C. Invalidity

GWA moves for summary judgment of no invalidity on two grounds. First, GWA argues that the '864 Patent was not anticipated by U.S. Patent Application Publication No. 2009/0050529 A1 to Rainer (“Rainer”) (ECF No. 180-74). (ECF No. 180-1 at 35–36.) Second, GWA argues that the '864 Patent is not invalid for lack of enablement. The Court will address these two issues in turn.

1. Anticipation

GWA moves for summary judgment of no anticipation as to Rainer (ECF No. 180-74).¹³ (ECF No. 180-1 at 35–36.)

Under 35 U.S.C. § 102(a)(2), a person is generally not entitled to a patent if the claimed invention was disclosed by a prior art reference. “To anticipate a claim, a single prior art reference must disclose each and every element recited in the claim.” *UCB, Inc. v. Actavis Labs. UT, Inc.*, 65 F.4th 679, 687 (Fed. Cir. 2023) (citation and internal quotation marks omitted). The elements in the prior reference “must be arranged or combined in the same way as in the claim,” but the

¹³ Grace has cross-moved for summary judgment on the issue of anticipation because of Rainer. The Court addresses Grace’s cross-motion *infra* Part V.A.2.

prior reference need not use the exact same language to describe those elements. *Adasa Inc. v. Avery Dennison Corp.*, 55 F.4th 900, 909 (Fed. Cir. 2022).

Because patents are entitled to a presumption of validity, a party asserting invalidity by anticipation has the burden of proving its case by clear and convincing evidence. *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1252 (Fed. Cir. 2014) (citing *Microsoft Corp. v. i4i L.P.*, 564 U.S. 91, 95 (2011)). That said, anticipation is a question of fact ordinarily reserved for the jury, and summary judgment of no anticipation should be granted “only if no reasonable juror could find the reference provides the necessary disclosure.” *Adasa Inc.*, 55 F.4th at 910.

Here, it is undisputed that Rainer discloses several of the limitations of the asserted claims of the '864 Patent, such as disclosing a CO to CO₂ combustion promoter comprising microsphere sized particles containing alumina. (See ECF No. 189 at 35.) But the parties dispute whether Rainer discloses a particle that meets what the Court has previously referred to as the “eggshell requirement,” see *GWA I*, 700 F. Supp. 3d at 344; that is, a particle where the noble metals are distributed at a higher concentration at the outer region of the particle as compared to the center of the particle.

GWA argues that Rainer cannot have anticipated the '864 Patent because it “does not teach an eggshell distribution and, in fact, teaches the *exact opposite*,” *i.e.*, a particle with an “egg yolk” distribution wherein the noble metal is concentrated toward the center of the particle. (ECF No. 180-1 at 36 (emphasis in original).) However, Rainer does contain the following reference to particles with an eggshell distribution:

When alumina supports are impregnated solely with hexachloroplatinic acid, it has been found that the resulting catalyst profile is typically of the “eggshell” type, that being the platinum is located in a thin shell at the support surface.

(Rainer ¶ 0063 (ECF No. 180-74).)

To be sure, despite this passing reference to an eggshell distribution, the overwhelming focus of Rainer is on particles with an egg yolk distribution, and it is an egg yolk particle that is claimed in the application. (*See generally id.*) Nevertheless, “whether a reference teaches away from an invention is inapplicable to an anticipation analysis.” *ClearValue, Inc. v. Pearl River Polymers, Inc.*, 668 F.3d 1340, 1344 (Fed. Cir. 2012) (cleaned up). Indeed, the cited reference need not “teach what the subject matter of the patent teaches; it is only necessary that the claims under attack, as construed by the Court, read on¹⁴ something disclosed in the reference.” *Celeritas Techs. Ltd. v. Rockwell Int’l Corp.*, 150 F.3d 1354, 1361 (Fed. Cir. 1998) (cleaned up). Thus, “[a] reference is no less anticipatory if, after disclosing the invention, the reference then disparages it.” *Id.* Here, a reasonable jury could find that Rainer discloses the eggshell requirement, *i.e.*, a particle in which the noble metal is located “toward the surface of the combustion promoter particle, rather than being evenly distributed throughout the particle.” *GWA I*, 700 F. Supp. 3d at 331.

Because a reasonable jury could find that Rainer discloses the eggshell requirement, and because it is undisputed that Rainer discloses every other claim element, summary judgment of no anticipation will be denied.

2. Enablement

Under § 112 of the Patent Act, the patent specification must use sufficiently clear terms “as to enable any person skilled in the art to which it pertains . . . to make and use the [claimed invention].” 35 U.S.C. § 112(a). The enablement requirement “enforces the essential *quid pro quo* of the patent bargain”: in exchange for obtaining a limited government-backed monopoly, the patentee must “teach the public how to practice the full scope of the claimed invention.” *McRO*,

¹⁴ “Read on” is a term of art in patent law; if a prior art reference “reads on” a patent claim, then the prior art reference “contain[s] all the same features” and thus anticipates the patent in question. *Read On*, Black’s Law Dictionary (12th ed. 2024).

Inc. v. Bandai Namco Games Am. Inc., 959 F.3d 1091, 1099–1100 (Fed. Cir. 2020) (internal quotation marks and citation omitted).

Courts employ a reasonableness test for enablement: the specification need not “describe how to make and use every possible variant of the claimed invention,” but must be sufficiently clear as to teach a person of ordinary skill in the art (“POSITA”)¹⁵ “how to make and use the full scope of the claimed invention without undue experimentation.” *Id.* (internal quotation marks and citation omitted). The question of whether undue experimentation would be needed to make and use an invention is a question of law, but this question requires a court to “weigh[] many factual considerations.” *ALZA Corp. v. Andrx Pharms., LLC*, 603 F.3d 935, 940 (Fed. Cir. 2010) (citation omitted). These considerations comprise:

- (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

Id. (citation omitted). Even if a POSITA would need to embark on “a considerable amount of experimentation” to arrive at the claimed invention, a patent will still be deemed enabled if “the experimentation is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed.” *Vasudevan Software, Inc. v. MicroStrategy, Inc.*, 782 F.3d 671, 684 (Fed. Cir. 2015) (internal quotation marks

¹⁵ As the Court previously stated,

The parties agree that for the purposes of the '864 Patent, a POSITA “would have had an advanced degree in a relevant field, such as chemistry, chemical engineering, or material science, with experience working with supported metal catalysts, and had at least 2-3 years of experience with oxidation catalysts and their application. Work experience can compensate for less formal education, and vice versa.” (ECF Nos. 76 at 9, 77 at 11–12). The Court adopts this definition.

GWA I, 700 F. Supp. 3d at 336–337.

and citation omitted). The party challenging a patent for lack of enablement has the burden of proving any fact necessary to make such a finding by clear and convincing evidence. *Id.*

Here, Grace concedes that “the two-step impregnation method disclosed in the ’864 patent may be sufficient to enable a POSITA to make the claimed eggshell particles.” (ECF No. 189 at 50.) However, Grace argues that the ’864 Patent does not enable the full scope of the claimed invention because it does not explain how to manufacture a claimed combustion promoter using a single-step impregnation method. (*Id.*)

Here, Claim 1 of the ’864 Patent is directed toward a product, not a process. The full scope of that product can, undisputably, be created using a two-step impregnation method described in the specification. The law does not require that the patentee *also* teach every other possible method that might succeed in creating the claimed invention. As the Federal Circuit has explained, “it is well established that the enablement requirement is met if the description enables *any* mode of making and using the invention.” *Takeda Pharm. Co. v. Zydus Pharms. USA, Inc.*, 743 F.3d 1359, 1369 (Fed. Cir. 2014) (internal quotation marks and citation omitted); *see also Bayer Healthcare LLC v. Baxalta Inc.*, 989 F.3d 964, 982 (Fed. Cir. 2021) (“[T]he specification need not include a working example of every possible embodiment to enable the full scope of the claims.”).

Grace contends that the “any mode” language in *Takeda Pharmaceutical* is “wrong as a matter of law” in light of the Supreme Court’s ruling in *Amgen Inc. v. Sanofi*, 598 U.S. 594, 610 (2023). In *Amgen*, the Court explained that “[i]f a patent claims an entire class of processes, machines, manufactures, or compositions of matter, the patent’s specification must enable a person skilled in the art to make and use the entire class.” *Id.* In short, “[t]he more one claims, the more one must enable.” *Id.* However, while this language could arguably be in some tension with the Federal Circuit’s “any mode” language, the Supreme Court emphasized in *Amgen* that it did not

take issue with the Federal Circuit's caselaw on enablement. *See id.* at 615. And, neither the Supreme Court nor the Federal Circuit has overruled *Takeda Pharmaceutical*, or the cases preceding it.

Moreover, *Amgen*, and the cases discussed therein, dealt with the issue of patents that claimed a broad scope of products but did not provide instructions on how to make the products:

Much as Morse sought to claim all telegraphic forms of communication, Sawyer and Man sought to claim all fibrous and textile materials for incandescence, and Perkins sought to claim all starch glues that work as well as animal glue for wood veneering, Amgen seeks to claim "sovereignty over [an] entire kingdom" of antibodies.

Id. at 613 (alteration in original). Although Amgen sought to patent a broad range of antibodies, it did not explain how to create those antibodies but instead provided two general methods that scientists could use to identify them. As the Supreme Court observed, "[t]hese two approaches amount to little more than two research assignments They leave a scientist about where Sawyer and Man left Edison: forced to engage in painstaking experimentation to see what works. That is not enablement. More nearly, it is a hunting license." *Id.* (internal quotation marks and citations omitted).

Here, by contrast, the '864 Patent does not claim the entire field of combustion promoters, but only combustion promoters that meet various specifications relating to size, shape, composition, and noble metal distribution. It is uncontested that two-step impregnation suffices to make the full scope of particles that conform to the claim limitations. And Grace does not contend that a POSITA would need to embark on an undue amount of experimentation to use the two-step impregnation method. Instead, Grace seems to confuse the requirement that the patent provide *a* way to enable the full scope of the claimed invention with a requirement that the patent disclose *all* ways to make the claimed invention. But this is not what the law requires. Thus, no

reasonable jury could find, by clear and convincing evidence, that the patent fails to enable a POSITA to make the full scope of the invention without undue experimentation. *See Takeda Pharm.*, 743 F.3d at 1369 (holding that a patent was adequately enabled “because the patent identifies laser diffraction as a viable measurement technique, and there is no dispute that a skilled artisan would know how to use laser diffraction to measure particle diameter”); *see also Anderson*, 477 U.S. at 254–55, 257 (holding that a court should take into account the heightened evidentiary standard when deciding whether a reasonable jury could find in favor of a nonmovant who would have the burden at trial of proof by clear and convincing evidence).

V. GRACE’S CROSS-MOTION FOR SUMMARY JUDGMENT

The Court now turns to Grace’s Cross-Motion for Summary Judgment. Grace requests entry of summary judgment in its favor on two overarching grounds: first, that the ’864 Patent is invalid, either for indefiniteness or for anticipation; second, that there is no genuine dispute that Grace’s accused Optimized CPP product does not infringe the ’864 Patent. The Court will begin by evaluating Grace’s invalidity contentions before moving on to an analysis of Grace’s arguments on noninfringement.

A. Invalidity Contentions

As the Court has already stated, because patents are entitled to a presumption of validity, a party asserting invalidity must prove all facts necessary to that defense by clear and convincing evidence. *Microsoft Corp. v. i4i L.P.*, 564 U.S. 91, 95 (2011). As explained below, the Court concludes that Grace is not entitled to summary judgment on invalidity grounds.

1. Indefiniteness

Grace contends that the phrases “outer region” and “centre,” as used in the ’864 Patent, are indefinite, and that therefore Claim 1 (the sole independent claim) is invalid. As the Court explained in the claim construction ruling:

The definiteness provision of the Patent Act requires that a patent “conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor . . . regards as the invention.” 35 U.S.C. § 112(b). This provision “require[s] that a patent’s claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910 (2014). The reasonable certainty standard aims to balance “the inherent limitations of language” with the requirement that a patent be “precise enough to afford clear notice of what is claimed, thereby apprising the public of what is still open to them.” *Id.* at 908 (alterations and quotations omitted). “Whether a claim complies with the definiteness requirement of 35 U.S.C. § 112 ¶ 2¹⁶ is a matter of claim construction[.]” *Noah Systems, Inc. v. Intuit Inc.*, 675 F.3d 1302, 1311 (Fed. Cir. 2012). The party asserting indefiniteness has the burden of proving any fact necessary to make that determination by clear and convincing evidence. *Ironburg Inventions Ltd. v. Valve Corp.*, 64 F.4th 1274, 1284 (Fed. Cir. 2023).

GWA I, 700 F. Supp.3d at 351 (alterations in original). Indefiniteness is a question of law, but the Court may make subsidiary factual determinations based on extrinsic evidence to determine how a POSITA would understand a disputed term. *Eli Lilly & Co. v. Teva Parenteral Meds., Inc.*, 845 F.3d 1357, 1370 (Fed. Cir. 2017).

The definiteness requirement “serves an important policy goal—providing clarity such that a [POSITA] could determine whether or not an accused product or method infringes the claim.” *Niazi Licensing Corp. v. St. Jude Med. S.C., Inc.*, 30 F.4th 1339, 1346–47 (Fed. Cir. 2022). The Supreme Court has observed that “absent a meaningful definiteness check . . . patent applicants

¹⁶ In 2012, Congress redesignated paragraph 2 of 35 U.S.C. § 112 as § 112(b). See *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 789 F.3d 1335, 1340 (Fed. Cir. 2015). References to the two provisions are otherwise interchangeable.

face powerful incentives to inject ambiguity into their claims,” *Nautilus*, 572 U.S. at 910, presumably so they could then pursue the broadest range of arguable infringers.

Questions about indefiniteness often arise when a patent claim uses terms of description or degree. It is well established that “a patentee need not define his invention with mathematical precision in order to comply with the definiteness requirement.” *Niazi*, 30 F.4th at 1347 (citation omitted). Indeed, patentees are free to use “broad claim language” in their patents without necessarily running afoul of the definiteness requirement. *Id.* When examining terms of description or degree, the key inquiry is whether the patent, read in the appropriate context, provides “objective boundaries” sufficient to allow a POSITA to understand what is (and is not) claimed. *Id.* When, however, there is no “standard for measuring the scope of the phrase” or when there is “insufficient guidance as to any objective boundaries for the claim,” then the claim is invalid. *Id.* at 1348 (internal quotations omitted).

Here, the Court previously construed “outer region” to have its plain and ordinary meaning, and “centre” to be the “region distinguishable from the outer region of the particle.” *GWA I*, 700 F. Supp. 3d at 354. Grace argues that under this construction, the terms are indefinite because they fail to clearly apprise a POSITA of how to measure where the outer region ends and the center begins. (ECF No. 189 at 23–32.) In support of this argument, Grace contends that GWA’s own witnesses betrayed inconsistent understandings of the terms. (*Id.*) In particular, some witnesses seemed to adopt the definition of “outer region” as the region with a depth from the outer surface of between 1 to 10 microns, even though the Court has held that the reference in the specification of the ’864 Patent to this range “cannot be limiting.” *GWA I*, 700 F. Supp. 3d at 352. And, according to Grace (*see* ECF No. 189 at 29–31), at times GWA witnesses seemed to define the terms by reference to the change in concentration of noble metals between the two regions, even

though the Court had previously expressed misgivings about this approach. (*Id.*) Moreover, Grace contends that “a POSITA could reach different conclusions about where the concentration changes—it is up to the subjective views of the POSITA.” (*Id.* at 31.) GWA, in response, argues that (1) the example of the 1–10 micron range in the specification provides useful guidance to a POSITA, (2) descriptive terms of degree (such as “outer region”) are permitted in patent claims; (3) the concepts of “outer layer” and the related concept of “eggshell” are well known in the relevant industry; and (4) the specification of the ’864 Patent explains how a POSITA could define or test for the location of the outer region as compared to the center. (ECF No. 193 at 22–27.)

The Court holds that Grace has not met its burden of showing by clear and convincing evidence that the terms “outer region” and “centre” are indefinite. There is a genuine factual dispute as to whether a POSITA would have a reasonable understanding of how to test for whether there is a higher concentration of noble metals in the “outer region” of the particle as compared to the “centre” of the particle. Viewing the evidence in the light most favorable to GWA, a POSITA would have objective guidance for determining where the outer region begins; namely, a POSITA could use specialized testing (referenced in the specification) to determine the concentration of noble metals at various depths throughout the particle. In particular, the specification teaches that a POSITA could use “low electron ion scattering” to examine the concentration of the surface of the particle, and could combine this technique with “a bulk chemical analysis technique such as X-ray fluorescence (XRF) or inductively coupled plasma (ICP)” to compare the concentration of noble metal at some selected depth from the outer surface of the particle as compared to the concentration of the noble metal throughout the particle as a whole. ’864 Patent at 5:30–45. According to GWA’s putative expert, a POSITA would understand these instructions and know how to make this measurement to determine the center versus outer region. (ECF No. 180-39 at

115.) By comparing the concentrations, a POSITA could determine whether the noble metals are distributed in an eggshell formation by looking to see whether there is a measurable higher concentration of noble metal at any set of points toward the exterior surface of the particle as compared to the remaining set of points toward the center. If there is such a higher concentration, then the region toward the exterior surface containing said higher concentration would be considered the “outer region” of the particle, and the remaining portion of the particle would be the “centre.”¹⁷

In support of its indefiniteness argument, Grace relies heavily on *Saso Golf, Inc. v. Nike, Inc.*, 843 F. App’x 291 (Fed. Cir. 2021). In *Saso Golf*, the plaintiff, suing for infringement, held a patent on a golf club with a supposedly novel design for the curvature of the clubhead. *Id.* at 292. By the terms of the patent, to determine whether a club met the specifications of the plaintiff’s patent, an artisan would need to know the locations of the “toe” and “heel” on a clubhead. *Id.* at 293. But the patent did not explain how to measure the location of the toe and heel, and the

¹⁷ The Court recognizes that in its Claim Construction Memorandum and Order, it stated that understanding “outer region” to depend on a change in concentration would inject a “confusing degree of circularity into the language of Claim 1.” 700 F. Supp. 3d at 352 n.8. But upon further reflection and consideration of the materials submitted in connection with the cross-motions for summary judgment, the Court finds that differentiating the inner and outer regions of a particle on the basis of concentration is logically coherent—although concededly conceptually less easy to grasp than if the regions were simply delineated by a fixed depth from the outer surface. To be clear, the Court does not view anything in this opinion as modifying its constructions of the specific terms “outer region” and “centre” as set forth in the claim construction opinion, *GWA I*, 700 F. Supp. 3d at 354; instead, the Court simply observes that, by the terms of Claim 1, to determine whether another particle meets the *overall* limitation of a particle with a “higher concentration of . . . noble metals . . . in the outer region of the . . . particle as compared to the concentration of the . . . noble metals in the centre of the . . . particle,” a POSITA would need to be able to measure the concentration of noble metals at different points throughout that particle.

All that said, the Federal Circuit has endorsed the practice of “rolling claim construction, in which the court revisits and alters its interpretation of the claim terms as its understanding of the technology evolves.” *Pressure Prods. Med. Supplies, Inc. v. Greatbatch Ltd.*, 599 F.3d 1308, 1316 (Fed. Cir. 2010) (citation omitted). Moreover, to the extent that the parties view this opinion as modifying its prior construction, the Court observes that there is no impropriety in revising its claim construction sua sponte at the summary judgment stage. *See Level Sleep LLC v. Sleep No. Corp.*, Civ. No. 2020-1718, 2021 WL 2934816, at *3 (Fed. Cir. July 13, 2021).

defendant produced expert testimony to the effect that “toe” and “heel” had no commonly understood technical definition. *Id.* The plaintiff, by contrast, produced only the conclusory statement of an expert that the terms were understandable to a POSITA. *Id.* at 293–94. On appeal, the Federal Circuit affirmed the district court’s finding that the patent was invalid for indefiniteness, explaining that “for an artisan to be reasonably certain whether a golf club falls within the scope of the patent, they must be reasonably certain of the measurement points.” *Id.* at 296. However, as the court explained, “there are multiple methods of calculating the radii of curvature because the calculations depend on pinpointing the locations of the toe and heel,” but that “[n]othing in the record indicates that an artisan would inherently know the locations of those boundaries and the patent provides no guidance.” *Id.* at 297. Because the “scope of the claim depends on these measurements” and there was no guidance on how to take the measurements, the patent failed to provide clear notice of what was claimed and was thus indefinite. *Id.*

Grace argues that, “much like the indefinite claims in *Saso Golf*, which failed to instruct a POSITA on how to choose a point related to the toe and heel of the golf club from which to measure, the ’864 patent fails to inform a POSITA [of] any sensible way to draw the boundary between the ‘outer region’ and the ‘centre’ of the particle.” (ECF No. 189 at 31–32 (cleaned up).) The argument has force, but a careful reading of *Saso Golf* reveals that that case is distinguishable from the case at bar. As GWA points out (*see* ECF No. 193 at 23 n.12), critical to the *Saso Golf* decision was the conclusion that the “patent provided no guidance on where to locate the points (the toe and heel) and . . . an artisan would not know specific definitions for those areas.” 843 F. App’x at 298. But here, a reasonable jury could find that the ’864 Patent *does* provide a POSITA guidance on how to find the outer region: look for that portion toward the exterior of the particle

that contains a higher concentration of noble metals than the rest of the particle, using identified, known testing methods.

The '864 Patent's treatment of the concept of "outer region" doubtlessly could have been more perspicuous. But the definiteness provision does not require a patentee to use the clearest or most precise language possible. *See Nautilus*, 572 U.S. at 910 ("[S]ome modicum of uncertainty is the price of ensuring the appropriate incentives for innovation" (internal quotation marks and citation omitted)). Instead, the test is whether a POSITA, reading the claim language in its appropriate context, would have *reasonable*—not absolute—certainty about the claim's scope. *Id.* To obtain summary judgment on this issue, Grace has the burden of proving by clear and convincing evidence that a POSITA would lack reasonable certainty as to how to determine the location of the outer region in the context of the '864 Patent. Although this is ultimately a legal determination, indefiniteness is "amenable to resolution by the jury when the issues are factual in nature," *B.J. Servs. Co. v. Halliburton Energy Servs., Inc.*, 338 F. 3d 1368, 1372, particularly when—as here—the "evidence on the[] topic[is] almost exclusively extrinsic, in large part encompassing warring expert testimony," *Bombardier Recreational Prods. Inc. v. Arctic Cat Inc.*, 785 F. App'x 858, 867 (Fed. Cir. 2019). The Court concludes that reasonable jurors could differ in their interpretation of the competing extrinsic evidence, and thus Grace has not met its burden at this stage of the litigation. Accordingly, summary judgment on this issue will be denied.

2. Anticipation

Grace has cross-moved for summary judgment of anticipation, on the grounds that the '864 Patent was anticipated by the Rainer patent application (ECF No. 180-74). (ECF No. 189 at 9, 35–38.)

The Court has articulated the legal standard for anticipation, *supra* Part IV.C.1. In short, “[t]o anticipate a claim, a single prior art reference must disclose each and every element recited in the claim.” *UCB, Inc. v. Actavis Labs. UT, Inc.*, 65 F.4th 679, 687 (Fed. Cir. 2023) (internal quotation marks and citation omitted). As relevant here, the Federal Circuit has explained:

The requirement that the prior art elements themselves be arranged as in the claim means that claims cannot be treated as mere catalogs of separate parts, in disregard of the part-to-part relationships set forth in the claims and that give the claims their meaning. Unless a reference discloses within the four corners of the document not only all of the limitations claimed but also all of the limitations *arranged or combined in the same way as recited in the claim*, it cannot be said to prove prior invention of the thing claimed and, thus, cannot anticipate under 35 U.S.C. § 102.

Therasense, Inc. v. Becton, Dickinson & Co., 593 F.3d 1325, 1332 (Fed. Cir. 2010) (cleaned up) (emphasis in original).

As the Court has already explained, *supra* Part IV.C.1, the parties dispute whether Rainer discloses the eggshell limitation of the ’864 Patent and, if so, if Rainer discloses that limitation arranged or combined with all the other limitations in the same way as in the ’864 Patent.

The invention claimed in Rainer is essentially the inverse of the invention in the ’864 Patent: the Rainer particle has an “egg yolk” distribution wherein the noble metal is primarily concentrated in the center of the particle. (ECF No. 180-74 at 7.) However, as noted above, Rainer does contain a single reference to an eggshell distribution:

When alumina supports are impregnated solely with hexachloroplatinic acid, it has been found that the resulting catalyst profile is typically of the “eggshell” type, that being the platinum is located in a thin shell at the support surface.

(*Id.* ¶ 0063).¹⁸

¹⁸ Rainer ¶ 0063 reads, in its entirety:

Internal distribution of a platinum group metal is also known by impregnating a porous support with a platinum group salt and an acid that competes with the platinum salt for

Grace seizes on this sentence to argue that Rainer discloses a combustion promoter of the type claimed in the '864 Patent that meets the eggshell requirement. (*See* ECF No. 191-1 at 36–37.) To be sure, the language, read in isolation, seems to disclose the eggshell requirement. However, the language must be read in the context of the rest of Paragraph 63 and the rest of Rainer as a whole, which is focused on creating combustion promoters with an egg yolk distribution. In this context, a reasonable juror could conclude that the single reference to “eggshell” distribution is not specifically referring to a combustion promoter meeting all the other limitations of the '864 Patent (*i.e.*, a combustion promoter comprising a microsphere-sized porous particle, *etc.*), but is simply referring to unspecified kinds of alumina support particles with platinum at the surface of the particle. Paragraph 63 is generally discussing ways in which a particle with different types of metal distribution can be created. But Paragraph 63 is not necessarily about how to create a combustion promoter meeting all the limitations of Claim 1 of the '864 Patent. This conclusion is reinforced by the fact that at the end of Paragraph 63, the author cites to a 1996 article by Papageorgiou *et al.*, and there is evidence that the particles discussed in the Papageorgiou article

adsorption within the porous support. For example, a high surface area porous support can be contacted with a liquid solution of the active component. The active component enters the porous support via capillary action and diffusion and absorbs on the available surface sites. *When alumina supports are impregnated solely with hexachloroplatinic acid, it has been found that the resulting catalyst profile is typically of the “eggshell” type, that being the platinum is located in a thin shell at the support surface.* It has been known that the platinum distribution could be made more uniform or distributed in the center of a catalyst by co-impregnating the hexachloroplatinic acid with an acid such as HCl or citric acid wherein the platinum is now in a sub-surface band or within the core of the porous support. Other co-impregnants have been studied in order to change the distribution of the platinum component. Depending on the relative diffusion and adsorption strengths of the co-impregnants, the active component can be “pushed” into the interior of the particle. A review of this type of process is described in “Preparation of Pt/Gamma- Al_2O_3 Pellets with Internal Step-Distribution of Catalyst: Experiments and Theory,” Papageorgiou, et al. [*sic*], *Journal of Catalysis* 158, 1996, pgs 439–451, and “Catalysis: An Integrated Approach, Second, revised and enlarged edition,” Netherlands Institute for Catalysis Research, 1999, Chapter 10, the entire contents of which are herein incorporated by reference.

(ECF No. 180-74 (emphasis added).)

are much larger than microspheres. (ECF No. 193 at 19, 22.) Thus, a reasonable jury could conclude that Paragraph 63 is about general methods of impregnating platinum onto generic alumina support particles, not specifically about impregnating platinum onto alumina particles that meet all the other specifications of the '864 Patent. (See Carpenter Report ¶ 136 (ECF No. 180-39 at 41).)

To support a finding of anticipation, it is not enough that Rainer discloses each limitation, read in isolation, of the '864 Patent; the limitations must be arranged in the same way in Rainer as in the '864 Patent.¹⁹ Here, although a reasonable jury could find that Rainer discloses the eggshell

¹⁹ *SeaChange Int'l Inc. v. C-Cor Inc.*, 413 F.3d 1361 (Fed. Cir. 2005), on which Grace relies, is not to the contrary. In *SeaChange*, a jury found in favor of SeaChange on patent infringement and found that the patent was not anticipated by a prior patent issued to Gardner *et al.* ("Gardner"), and the district court denied C-Cor's motion for judgment as a matter of law ("JMOL"). *Id.* at 1366–67. The Federal Circuit vacated and remanded the district court's ruling denying JMOL on the grounds of anticipation by Gardner. *Id.* at 1381. The district court, in its ruling, found that Gardner did not disclose a "processor systems" limitation, as was claimed by the patent-in-suit. *Id.* at 1379. But, as the Federal Circuit explained, evidence adduced at trial showed that Gardner contained a sentence disclosing a computer serving as both client and server, and an expert provided apparently un rebutted testimony that a computer serving both functions would practice the "processor systems" limitation. *Id.* at 1380–81. As the Federal Circuit explained:

Figure 1 of Gardner discloses a system employing a plurality of media servers, with the media clients located elsewhere. Gardner, Figure 1. The text of Gardner . . . discloses that a media client could be combined with a media server on one machine. According to Dr. Rhyne, such an embodiment would meet the "processor requirement." To be anticipating, Gardner need not disclose a separate figure depicting a plurality of machines with the combined media client and media server; disclosing the embodiment in textual form is enough. The fact that another embodiment is disclosed does not detract from the remainder of the disclosure.

Id. at 1380.

SeaChange is distinguishable from this case. Here, unlike in *SeaChange*, there is a dispute as to whether Paragraph 63 "disclos[es] the embodiment in textual form" or rather discloses a single limitation, untethered to the rest of the elements of the embodiment. Second, the no-anticipation ruling was vacated *not* because the Federal Circuit found that Gardner *did* in fact anticipate the patent-in-suit, but rather because several of the district court's claim constructions were in error, which fatally infected the anticipation analysis, and because the district court's characterization of the evidence was contrary to the record. *Id.* at 1381. The Federal Circuit then remanded for the court to determine whether, on the basis of clear and convincing evidence, no reasonable jury could find lack of anticipation. *Id.* Here—unlike the district court in *SeaChange*—the Court is not making a final ruling of no anticipation, but is simply holding that factual disputes preclude entry of summary judgment on the issue.

requirement, a reasonable jury could *also* find that a POSITA would not understand the eggshell particles disclosed in Paragraph 63 to also possess all the other elements disclosed elsewhere in the text. In other words, a reasonable jury could find that Rainer does not disclose a single composition featuring all the elements of the '864 Patent, but rather discusses at least one element—the eggshell requirement—in isolation from the others. Because there is a genuine dispute as to whether a POSITA would read Paragraph 63's reference to eggshell particles as referring to a generic alumina particle with an eggshell distribution, or as referring to a particle that otherwise meets all the limitations of the '864 Patent, summary judgment on the question of anticipation will be denied.

B. Noninfringement

Grace argues that it is entitled to summary judgment of noninfringement on three grounds. First, Grace contends that it is entitled to summary judgment in its favor because, during patent prosecution, GWA disavowed the method that Grace uses to manufacture Optimized CPP. (ECF No. 189 at 17–20.) Second, Grace argues that GWA has failed to meet its burden of showing that Grace's product meets the “concentration” element of Claim 1 of the '864 Patent. (*Id.* at 20 – 23.) Finally, Grace also argues that, even if summary judgment of noninfringement as a whole is not warranted, there is no genuine dispute that the subset of Optimized CPP manufactured in Worms, Germany (the “Worms CPP”) does not infringe the '864 Patent. (*Id.* at 16–17.)

A defendant moving for summary judgment of noninfringement must show that “no reasonable jury could have found infringement on the undisputed facts or when all reasonable factual inferences are drawn in favor of the patentee.” *Genuine Enabling Tech. LLC v. Nintendo Co.*, 29 F.4th 1365, 1372 (Fed. Cir. 2022) (citation omitted).

1. Disavowal

Grace argues that, during prosecution of the '864 Patent, GWA disavowed making its combustion promoter particle using the method of single-step impregnation. And, because (Grace contends) Optimized CPP is made using a [REDACTED], GWA cannot bring suit for patent infringement against that product—because, the argument goes, products made using single-step impregnation are outside the scope of the '864 Patent.

In general, a product claim is “not limited to the methods of manufacture disclosed in the specification.” *Andersen Corp. v. Fiber Composites, LLC*, 474 F.3d 1361, 1375 (Fed. Cir. 2007). However, “if the patentee has made clear that the process steps are an essential part of the claimed invention,” then those process steps will be “treated as part of a product claim.” *Id.* A patentee’s statement disavowing or disclaiming one method of manufacturing in favor of another may operate to import a process step into the claim, but only if the patentee “clearly and unmistakably” stated that the process was an essential part of the invention. *Continental Circuits LLC v. Intel Corp.*, 915 F.3d 788, 799 (Fed. Cir. 2019). An ambiguous disavowal or disclaimer will not constitute prosecution disclaimer. *Schindler Elevator Corp. v. Otis Elevator Co.*, 593 F.3d 1275, 1285 (Fed. Cir. 2010).²⁰

During prosecution, GWA submitted the following statement, in response to the patent examiner’s concern that the proposed patent was anticipated by a patent involving a related technology by an inventor named Yaluris:

To further substantiate that Yaluris does not describe an eggshell particle, Applicant submits herewith the Declaration of Dr. Herring. As Dr. Herring states,

²⁰ GWA characterizes Grace’s contention that GWA disavowed single-step impregnation as sounding in argument-based estoppel. (ECF No. 193 at 27.) The exact classification of Grace’s argument is unimportant, because the test for argument-based estoppel is identical to that for disavowal: “To invoke argument-based estoppel, the prosecution history must evince a clear and unmistakable surrender of the subject matter.” *Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, 904 F.3d 965, 975 (Fed. Cir. 2018) (internal quotation marks and citation omitted).

“the ‘base material’” formed in Example 4 of Yaluris will “*necessarily* comprise pores” and “impregnation of the ‘base material’” as described in Example 5 of Yaluris will “necessarily result in the platinum being found homogenously throughout the base material particles.” Dr. Herring is clear that “it is physically impossible for a method as described in Examples 4 and 5 of Yaluris to form an eggshell particle, as there is no mechanism in place to prevent capillary effects from forcing the platinum solution to penetrate throughout the entire depth of the pores of the particle.” [(ECF No. 64-1 at 4.)]

It is therefore abundantly clear that Yaluris’ method did not and cannot result in eggshell particles according to instant claim 1.

(ECF No. 76-2 at 99–100 (cleaned up) (emphasis in original).) Grace argues that this statement indicates that GWA disavowed the use of single-step impregnation during patent prosecution. (ECF No. 189 at 17–18.) But nowhere in this statement does GWA use the phrase “single-step impregnation” or any variant thereof. And, according to evidence proffered by GWA, although Example 5 of Yaluris did use a form of single-step impregnation to achieve a homogenous distribution, “single-step impregnation can result in a variety of different distribution patterns, depending on the specific single-step impregnation utilized,” and that single-step impregnation can even be used to create an eggshell distribution. (Carpenter Rep. ¶¶ 413–414 (ECF No. 180-39 at 119).) Moreover, in patent prosecution, GWA cited to three different articles which, according to GWA’s putative expert, discussed manufacturing methods that include examples of using a single-step impregnation process to create an eggshell distribution.²¹ (*Id.*)

²¹ Further, the Court reads GWA’s statement in the broader context of the entire patent prosecution history. *See Tech. Properties Ltd. v. Huawei Techs. Co.*, 849 F.3d 1349, 1357–58 (Fed. Cir. 2017). And when considering that context, it is apparent that GWA’s discussion of Yaluris was to rebut the patent examiner’s initial rejection on anticipation grounds, based on the examiner’s apparently erroneous belief that Yaluris disclosed an eggshell particle. (*See* ECF No. 76-2 at 68.) In responding to this objection, the focus of the patentee’s argument was not that GWA’s proposed patent disclosed a superior *process* of making combustion promoters, but rather that Yaluris disclosed a different *product* altogether, *i.e.*, a particle that lacked an eggshell distribution. (*See* ECF No. 76-2 at 100 (explaining that Yaluris “fails to disclose . . . any eggshell particles according to instant claim 1”).)

A reasonable jury could find that the challenged statement does not constitute disclaimer or disavowal of the method practiced by the accused products, because it is subject to at least two reasonable interpretations. *See Tech. Props. Ltd. v. Huawei Techs. Co.*, 849 F.3d 1349, 1358 (Fed. Cir. 2017) (“If the challenged statements are ambiguous or amenable to multiple reasonable interpretations, prosecution disclaimer is not established.”) One reasonable way to read the challenged statement is that the patentee’s distancing from Yaluris amounted to, at most, a disavowal of the *specific type* of single-step impregnation that Yaluris used, not a disavowal of all forms of single-step impregnation. And, several of Grace’s employees testified in depositions that Grace’s manufacturing methods differ in several ways from the methods disclosed in Yaluris. (See ECF No. 194-7 at 21–25; ECF No. 194-8 at 19–22.) To be sure, the other reasonable way to read the statement is to effect a broader disavowal, not only of the exact method used by Yaluris, but also of *any* method that lacks “a mechanism in place to prevent capillary effects from forcing the platinum solution to penetrate throughout the entire depth of the pores of the particle.” This could be fatal to GWA’s claim, as Grace’s putative expert contends that, “[l]ike Yaluris, the Accused Product is manufactured using a single-step incipient wetness impregnation lacking any mechanism to prevent capillary effects.” (Harold Rebuttal Rep. ¶ 76 (ECF No. 191-2 at 8).) However, it is not clear whether GWA should be understood as saying that any method for producing the claimed eggshell distribution must prevent capillary action, or rather that the *specific* method used by Yaluris would need an additional mechanism to prevent capillary action in order to create an eggshell distribution. Because a reasonable jury could find that this statement is ambiguous, a reasonable jury could further conclude that it does not meet the high bar of “clear and unmistakable surrender of the subject matter” that would be required for GWA to be estopped

from asserting infringement against products using this process. *See Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc.*, 904 F.3d 965, 975 (Fed. Cir. 2018) (citation omitted).

Grace has the burden of showing, by clear and convincing evidence, that GWA clearly and unmistakably disavowed all forms of single-step impregnation or all methods that lack a mechanism for preventing capillary action. A reasonable jury could find that GWA's statements did not meet the high bar of clear and unmistakable disavowal. For these reasons, the Court will deny Grace's request for summary judgment of noninfringement on the basis of disavowal of combustion promoters created using single-step impregnation or without a mechanism for preventing capillary action.²²

2. Evidence of Concentration in Accused Products

Claim 1 of the '864 Patent requires that there be a "higher concentration" of noble metals in the outer region of the particle as compared to the concentration of noble metals in the center of the particle. '864 Patent at 14:45–57. This differential concentration of noble metals is essential to the eggshell design of the '864 Patent, which is the key innovation claimed. During the claim construction stage, the parties jointly agreed that "concentration" means "mass/volume." *GWA I*, 700 F. Supp. 3d at 332.²³ Grace argues that GWA has failed to meet its burden of showing that the

²² Because the Court holds that Grace has not met its burden of showing by clear and convincing evidence that GWA disavowed single-step impregnation, the Court need not and does not reach GWA's alternative argument that there is a genuine factual dispute over whether Optimized CPP is in fact manufactured using [REDACTED] rather than some other method. (See ECF No. 193 at 30–33.)

²³ Grace contends that "[t]his Court construed the claim term 'concentration' to mean 'mass/volume'" (ECF No. 189 at 8), but this mischaracterizes the record. In its claim construction ruling, the Court observed that the parties agreed that "concentration" should be construed to mean "mass/volume," but the Court never stated that it adopted the parties' undisputed terms as its own. *GWA I*, 700 F. Supp. 3d at 332. Indeed, the Court stated at the beginning of that ruling that "[t]his Memorandum and Order sets forth the Court's construction of the *disputed* terms in the '864 Patent." *Id.* at 330 (emphasis added). In any event, as explained in this section, assuming—without deciding—that concentration should be construed to mean "mass/volume," GWA has produced sufficient evidence to support a finding that Grace's accused product meets the concentration requirement of the '864 Patent.

accused products meet the “concentration” limitation, because GWA has not produced evidence in the form of a “ratio of mass to volume.” (ECF No. 189 at 20.)

The Court has already set forth the legal standard for patent infringement earlier in this Memorandum, *supra*, Part IV.B. Briefly, the party asserting infringement must show that the accused product meets each and every limitation of the claimed invention, as construed by the Court. *See MicroStrategy Inc. v. Bus. Objects, S.A.*, 429 F.3d 1344, 1352 (Fed. Cir. 2005). Because infringement is a question of fact, the Court should grant summary judgment of noninfringement only when “no reasonable factfinder could find that the accused product contains every claim limitation or its equivalent.” *Medgraph, Inc. v. Medtronic, Inc.*, 843 F.3d 942, 949 (Fed. Cir. 2016).

Grace contends that GWA’s evidence on concentration is fatally flawed because it is presented in the form of “relative concentration” or simply in the form of the “amount” of noble metal, rather than in the form of mass per volume. (ECF No. 189 at 20–23.)

GWA responds that the testing done by its putative experts yielded “a direct reflection of concentration on a mass/volume basis” and that “by a simple conversion, the data could be further represented in mass/volume units.” (ECF No. 193 at 33.) However (according to GWA), “conversion to absolute values was unnecessary because all Claim 1 requires is a *difference* in concentration: higher in the outer region as compared to the centre.” (*Id.* (emphasis in original).)

According to GWA’s putative expert, Dr. Carpenter, one can use the well-established technique of “laser ablation inductively coupled plasma mass spectrometry” (“LA-ICP-MS”) to measure the number of atoms in a given sample. (Carpenter Rep. ¶¶46 – 47 (ECF No. 189-8 at 6).) Dr. Carpenter states that, “[w]hen using LA-ICP-MS, the number of atoms the mass spectrometer detects, or counts, is directly related to its concentration. By comparing the counts to established standards, you can obtain the concentration in units of parts per billion for most

elements.” (*Id.*) Dr. Carpenter further explains that Dr. Herring—GWA’s putative expert who conducted testing of the accused products—used laser ablation to analyze Optimized CPP samples, and that, “[i]n order to minimize any systematic error in the experiment, she accurately chose to not look at the absolute concentration of the metal, but instead at the ratio of the noble metal to aluminum from the support.” (*Id.* ¶ 100 (ECF No. 189-8 at 10).) Using this technique, and upon analyzing the results, Dr. Carpenter concludes that “[t]he data clearly shows that in Optimized CPP 19953-46, . . . there is higher ratio of palladium to aluminum in the outer region of the cross-section compared to the center of the particle.” (*Id.*)

Grace deposed Dr. Herring. The following exchange took place:

Q: [Y]our report here doesn’t provide any data regarding palladium on a mass-per-volume basis; correct?

A: So my report here provides relative – or excuse me. My report provides integrated counts of palladium to integrated counts of aluminum, which could be further interpreted to be a mass-per-mass concentration of palladium to aluminum, a mass-per-volume concentration of palladium to aluminum, or a mass-per-volume concentration of palladium to aluminum oxide. There are many ways to further interpret those results.

(ECF No. 189-20 at 7.)

The deposition testimony of Dr. Carpenter is similar. He explains that GWA’s testing reveals “relative concentration,” which “is not an absolute measurement of concentration, but [shows] the concentration relative to the other metal—or to the other regions.” (ECF No. 189-9 at 9.) He asserts that “[t]he relative concentration is just a unit conversion to get to mass over volume,” but he concedes that he did not make that conversion “nor did [he] see it necessary to do that.” (*Id.* at 10–11.)

This is a puzzling situation. If it is indeed so simple to perform a unit conversion to obtain data in the form of mass per volume, the Court is left to wonder why GWA neglected to take this step. Nevertheless, viewing the evidence in the light most favorable to GWA, the Court finds that

GWA's data and accompanying analysis are sufficient to support a finding that the "concentration" of noble metals in the outer region of the accused product is higher as compared to the "concentration" in the accused product's center. In particular, a reasonable jury could find accredit Dr. Carpenter's and Dr. Herring's finding that there is a higher ratio of palladium to aluminum in the outer region of the particle as compared to the particle's center.²⁴ If a jury credited these conclusions, then it could reasonably further conclude that a higher ratio of noble metals to aluminum in the outer region as compared to the center necessarily means that there is a higher *concentration* of noble metal in the outer region as compared to the center.

Ultimately, the question of whether GWA's testing shows that Optimized CPP meets the concentration limitation is one for the jury, not the Court, to decide. Drawing all reasonable inferences in GWA's favor, the Court cannot conclude that no reasonable jury could find that the accused products meet the concentration limitation of the '864 Patent. For these reasons, summary judgment on this issue will be denied.

3. Noninfringement of Worms CPP

Grace manufactures Optimized CPP at two facilities: one in Valleyfield, Quebec, Canada, and one in Worms, Germany. (*See* ECF No. 189 at 13 n.3.) Only the Optimized CPP manufactured in Valleyfield (the "Valleyfield CPP") is sold in the United States. The final issue to address in this Memorandum, then, is the appropriate disposition of GWA's claims of patent infringement with respect to the Optimized CPP manufactured in Worms (the "Worms CPP"). In its Amended Complaint, GWA draws no distinction between these two sources of Optimized CPP (*see generally* ECF No. 18), but GWA now concedes that it does not intend to prosecute its infringement claim

²⁴ Grace has proffered the testimony of a putative expert who contends that GWA's testing does not support this conclusion. (*See* ECF No. 203-2 at 12–14.) But because this is a disputed factual question, the Court must view the evidence in the light most favorable to GWA, the nonmovant on this issue.

against Worms CPP. (ECF No. 193 at 35.) However, GWA contends that because the Court has no subject-matter jurisdiction over an infringement claim against Worms CPP, entry of summary judgment would be inappropriate.²⁵ (*See id.*)

Before turning GWA's argument about subject-matter jurisdiction, the Court pauses to address a second, somewhat half-hearted argument that GWA raises but largely consigns to a footnote. One reason GWA no longer asserts infringement against the Worms CPP, GWA says, is that "Grace has only produced one sample of Optimized CPP from Worms for Plaintiffs to analyze." (ECF No. 193 at 36.) But GWA does not explain why one sample was insufficient to perform an analysis, or why such a purported failure on Grace's part would force GWA to abandon its claim. In any event, GWA never moved to compel additional production of Worms CPP during discovery, so will not be heard to complain now that they had insufficient materials to perform analysis. GWA also argues that "Grace has not produced a sample of the prototype Optimized CPP made at Worms in trial quantities for the Valero Wilmington and Placid trials. As such, Grace cannot obtain summary judgment of noninfringement by a product it was ordered to but failed to produce in discovery." (*Id.* at 35 n.21 (citing Fed. R. Civ. P. 37(c)).) Grace, in its reply brief, responds that "this complaint was never raised during discovery." (ECF No. 201 at 19.) On the record before the Court, there is no basis for the Court to conclude that Grace's production of Worms CPP was deficient. Accordingly, the Court will not deny Grace's summary judgment motion on this basis.

Turning to the subject-matter jurisdiction issue, GWA contends that there is not a genuine controversy, as is required for the Court's declaratory judgment jurisdiction, because GWA cannot

²⁵ GWA does not articulate how it thinks the Court should dispose of the patent infringement claim against Worms CPP, but presumably GWA wishes for the Court to dismiss the claim against Worms CPP without prejudice.

plausibly bring a claim against Worms CPP, as there is no evidence that Worms CPP is made or sold in the United States. (ECF No. 193 at 27–28.)

This is a strange argument. For one, Grace has not moved for declaratory judgment.²⁶ For another, GWA’s argument seems to be premised implicitly on the assumption that the bar against extraterritorial application of patent law presents a limit of the Court’s subject-matter jurisdiction. Section 271 of the Patent Act provides that “whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent.” 35 U.S.C. § 271(a). By its terms, and subject to exceptions not relevant here, an infringement action lies only if the accused product is imported into the United States or made, used, or sold in the United States. *See Microsoft Corp. v. AT & T Corp.*, 550 U.S. 437, 441 (2007) (“It is the general rule under United States patent law that no infringement occurs when a patented product is made and sold in another country.”); *Halo Elecs., Inc. v. Pulse Elecs., Inc.*, 831 F.3d 1369, 1378–79 (Fed. Cir. 2014) (discussing the presumption against extraterritorial application of United States patent law).

The flaw in GWA’s argument is that the bar against extraterritorial application of United States patent law is not jurisdictional. The Federal Circuit has held that “whether the allegedly infringing act happened in the United States is an element of the claim for patent infringement, not a prerequisite for subject matter jurisdiction.” *Litecubes, LLC v. N. Light Prods., Inc.*, 523 F.3d 1353, 1366 (Fed. Cir. 2008). Thus, there is no jurisdictional problem with the Court addressing patent infringement occurring wholly outside of the United States.

²⁶ To be sure, in Grace’s Answer and Counterclaim, it has brought a claim for declaratory judgment of noninfringement. (ECF No. 25 at 24.) But Grace has not moved for summary judgment in its favor on that counterclaim.

GWA's failure to show a domestic nexus with respect to Worms CPP does not deprive the Court of subject-matter jurisdiction over that claim; rather, there is simply a defect as to an essential element of a patent infringement claim, *i.e.*, that the accused product was made or sold domestically. GWA has not sought leave to amend its Complaint to clarify that Worms CPP is excluded from the category of allegedly infringing products. Thus, there is still a live claim that the Court can adjudicate. And, because GWA has failed to proffer any evidence of a domestic nexus (indeed, it concedes that there is no such nexus), it has failed to demonstrate a triable issue with respect to its infringement claim against Worms CPP. The failure of GWA to demonstrate a domestic nexus is not a jurisdictional defect but one that goes to the merits of its claim. *Cf. Ariz. State Legislature v. Ariz. Indep. Redistricting Comm'n*, 576 U.S. 787, 800 (2015) ("One must not confuse weakness on the merits with absence of Article III standing." (cleaned up)).

Thus, summary judgment in Grace's favor on GWA's claim of patent infringement as to Worms CPP is appropriate.

VI. CONCLUSION

Most of the critical issues in this case turn on disputed factual questions that the Court cannot resolve on a summary judgment posture. If the parties do not otherwise reach a settlement, ultimately a jury, not the Court, will need to decide this case. That said, while most of this case remains unresolved, some important factual issues are not genuinely disputed, and summary judgment on those issues will be entered accordingly.

For the foregoing reasons, the parties' summary judgment motions (ECF Nos. 180, 189) will each be granted in part and denied in part. In particular, partial summary judgment will be granted in favor of GWA and against Grace on the following issues:

- i. Grace's comparative performance claims are literally false;
- ii. All challenged advertisements constitute commercial speech;
- iii. Grace placed all challenged advertisements in interstate commerce;
- iv. Grace's comparative performance claims are deceptive as a matter of law;
- v. The '864 Patent is not invalid for lack of enablement; and
- vi. Optimized CPP manufactured in Valleyfield, Canada, meets the following limitations of Claim 1 of the '864 Patent: (1) it is a "CO to CO₂ combustion promoter"; (2) it comprises "microsphere sized porous particles . . . having a diameter of less than 1 mm"; (3) it comprises alumina; and (4) it contains "one or more Group VIII noble metals," namely, palladium.

Summary judgment of noninfringement will be granted in favor of Grace and against GWA as to GWA's claim for patent infringement with respect to Optimized CPP manufactured in Worms, Germany.

In all other respects, both parties' requests for summary judgment will be denied. In particular, summary judgment will be denied as to the following issues:


- i. Whether Grace's outer surface and NO_x claims are literally false;
- ii. Whether Grace's challenged advertisements are material;
- iii. Whether Grace's outer surface and NO_x claims are likely to deceive consumers;
- iv. Whether the '864 Patent is invalid on the grounds of anticipation by Rainer;
- v. Whether the '864 Patent is invalid on the grounds of indefiniteness;
- vi. Whether the patentee disclaimed or disavowed any invention made using single-step impregnation and/or any method that lacked a mechanism to prevent capillary effects; and

- vii. Whether the accused Optimized CPP meets the “concentration” element of the ’864 Patent.

A separate order will issue.

DATED this 17 day of December, 2024.

BY THE COURT:



James K. Bredar
United States District Judge